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The Story of Lillian Hill, Beekeeper of Elbe

By Harriet Geithmann.

ON the road to Rainier National Park, the train never fails to whistle or stop at Park Junction, a station located in the middle of Mount Shadow Ranch, a two-hundred-acre farm, two and one-half miles from Elbe, Washington. Surrounded by purple hills of fireweed is the Mount Shadow Apiary, under the management of Lillian L. Hill, one of Washington's most indefatigable workers among bees.

"We have some thirty acres under cultivation," said Mrs. Hill; "the rest of the farm is logged-off land which we use to pasture our herd of fifty cattle."

In the midst of a green vegetable garden stands a yellow California bungalow. This is the beekeeper's tidy home. The beekeeper, herself, the joint owner of Mount Shadow Ranch, is just a slip of a woman, blue-eyed, fair-haired and rosy-cheeked. In her steady eyes one finds a courageous flame that commands respect. Yes, the beekeeper has a husband, an inventor-husband, whose heart and brain are mechanically bent. While Lillian Hill has no children of her own, yet she has found a way of mothering every kid she can get her hands on and teaching each and every one of them the art of beekeeping.

In 1913 Lillian Hill invested in six swarms of bees. Before that she had never even seen a swarm. Along came an old man one day peddling bees. "You have a wonderful place here for bees," he persuaded her. Those six swarms increased so fast and produced so much honey that Lillian Hill invested in twenty more swarms in 1914. That made a total of forty swarms. That year she harvested 6,500 pounds of honey, 4,000 pounds of which was comb honey and the rest extracted, a record yield for the state of Washington, one hundred sections of comb honey and sixty pounds of extracted honey to the colony.

In 1915 she encountered her first handicap, and, being a greenhorn at the business, it found her unprepared. European foulbrood worked



Mrs. Hill and some of her pets.

havoc among her bees. Practically all of them died. After that she just maintained a dozen hives with which to supply her own table and the neighbors. In 1922, in order to capture the interest of one of her boys, she increased her bees to twenty-six hives. In 1924, to help one of her girls through Normal school, she invested in thirty more hives and loaned them to the girl. The girl lived next door to an abandoned schoolhouse on an acre of ground. That led Mrs. Hill to rent the schoolhouse and land from the school board. Along came a young man on fire with beekeeping ideals from Colorado. In order to learn the beekeeping business under the leadership of Mrs. Hill, he rode all the way on a bicycle from Colorado to Elbe, Washington.

During the season of 1925, Mrs. Hill established the Colorado youth in the schoolhouse and furnished him with plenty of bees on a commission basis of fifty-fifty. Hills of fireweed encircled the schoolhouse grounds. In four months the Colorado cyclist cleared up \$500.00 for himself.

Today Lillian Hill has over one hundred and fifty hives of Italian bees, eighty-five at the schoolhouse and sixty-five at home. She plans to produce at least 10,000 sections of comb honey in 1926. She loves her bees, and when she is in a blue mood all she has to do is to go out and work among them. Her golden-winged legions are her gloom-dispellers.

Whenever her aged Collie sees her don the veil, he sneaks under the barn to wait until the battle is over, while Rover, the puppy, never deserts her side in the bee yard. Even when he gets stung for his loyalty, he stays on the job.

In one year Mrs. Hill raised sixty queens. That is the branch of the business that she enjoys most of all.

The season just ended netted her over 8,000 pounds of comb honey. Most of the marketing she does herself in her Buick car. She supplies the best stores in Tacoma and Seattle, besides a few commission men. "I don't have to hunt for a market," declared this energetic woman.

Beekeeping is Mrs. Hill's hobby, and of all her activities, past or present, on the Mount Shadow Ranch, the raising of beef cattle, seed potatoes, rutabagas, Duroc Jersey hogs, geese and ducks, it is safe to say that she enjoys her bees the most. Through them she finds many channels in which she can help her boys and girls, her real specialty. She discovers her boys and girls everywhere in reform schools, orphan asylums, on the neighboring farms and in the city. Sooner or later she manages to interest them

in bees and honey for the purpose of paying their way through the schools of the land. She believes that the best and safest way to help any human being is to help him help himself. For some time she has been the leader in the Boys' and Girls' Bee Club of Elbe. One of her boys won nearly \$80.00 with his exhibits of bees, honey and garden truck at the Western Washington Fair which just ended. Mrs. Hill also captured several first prizes for herself.

For the past two years Mrs. Hill has been the president of the Pierce County Beekeepers' Association.

Both triumphs and disasters have knocked often at Lillian Hill's door on the Mount Shadow Ranch, but neither one ever feazes her. While her name Lillian just expresses her gentle personality, yet one almost thinks it ought to express grit and tons of it, for she is a bundle of Stevensonian grit, indomitable grit, the kind that never whispers "die" until the last bee has flown.

"I never camp," confessed Lillian Hill, "on either the trail of my successes or my failures. I go right on." That's her philosophy in a nut-



Mrs. Hill in her apiary.

shell, the secret of the Mount Shadow Apiary with its accompaniment of boys and girls learning the mystic romance of the honeybee.

Washington.

1925 In Sunny Alberta

By H. T. Luther, Dominion Experimental Farm, Lethbridge.

The winter of 1924 was a long, severe one, with very little open weather, so that bees were not making brood quite as early as usual in the spring. All snow was gone by the first of April, and on the sixth of April the first pussy-willows were seen. Colonies on the whole seemed to be in good condition, being strong in bees and brood by the first of May. By May fourth tulips, narcissus, dandelions and cottonwood were yielding a maintenance of pollen and nectar. A surplus of new nectar was observed in cells May tenth, when dandelions were in full bloom. Plums, caragana, apple, dandelion and honeysuckle kept the bees feeding until the first white Dutch clover bloom was seen on May 28th. White Dutch clover may have given a light flow the first week of June, but showers and wind kept the bees at home. At this period and up to the fifteenth of the month there was a marked decrease in numbers of bees in the colonies, so that some uniting was done. These conditions were no doubt caused by bees hurrying forth in their endeavor to gather nectar, when they were caught by cool wind and showers and perished. This would no doubt be called "spring dwindling," but the weather, it would appear, was the real culprit.

The first gain made by the colony on scales was recorded June 15th, during a period of very hot weather which continued, broken by a few showers, to the end of the month. The highest daily gain in June was four pounds. The nectar was very clear and apparently was obtained from white Dutch, Alsike, and a little from sweet clover. The month closed calm and hot.

July first, the heavy flow began, when sweet clover, white Dutch and Alsike clover, followed about the fifth of the month by alfalfa, began secreting nectar in real earnest. Up to the tenth of the month the weather was broken by cloudy days, showers and wind holding the bees back. July eighth, the first cutting of alfalfa was begun, so that bees did not have a very good chance at working it. Weather conditions until the end of the month were for the most part favorable. The highest daily yield for this year for one colony was eighteen pounds, made on July twenty-seventh, and gathered principally from sweet clover, white Dutch, and alsike clover and alfalfa. Until the ninth of August there was a continuation of this flow, which was then broken by cool rains and winds, just as the second crop of alfalfa was coming into bloom, and continued until the eighteenth of

the month. A period of warm weather and a light flow followed to the end of the month.

Cold winds and rains began with September and continued through the month until the first frost, six and one-half degrees, on September twelfth, cut off all hopes of obtaining the abundant crop promised by early May conditions. It was interesting to note that on September thirteenth and fourteenth, during a four-day period of hot weather between rains, the bees gathered seven and nine pounds of honey on these two respective days. This indicates that had other conditions been favorable, the bees were ready and willing, and that the nectar was there ready and waiting to be gathered from the second alfalfa crop. But for good honey production the ideal days with a wider range of temperature and a warm, humid atmosphere were very scarce.

Brood rearing had practically ceased by the fifteenth of September, and during the sudden cold weather many young bees perished in the top honey supers. Many small colonies which in ordinary years would have reared brood until well into October were stopped early in September and had to be united with others. However, after uniting and feeding and packing, bees went into winter well supplied with honey stores at least. The cold weather did not allow feeding as much sugar syrup as was desired, yet the colonies were fed an average of ten pounds of sugar and all colonies were well up to standard weight.

The average production of honey per colony was: Ten-frame Jumbo, 95.31 pounds, and ten-frame Langstroth 93.91 pounds, with an increase to the apiary of sixteen colonies over spring count after putting back nine colonies that were united in late spring. Seventy-one single colonies and ten five-frame nuclei were packed and fed for winter of 1925-1926. Feeding and packing were completed on November eleventh.

Canada's Production Increases

According to reports of the Ontario Honey Producers' Co-operative Association, Canada is now producing 21,000,000 pounds of honey per annum, while the domestic consumption is less than 9,000,000 pounds, and per capita consumption slightly less than 1 pound. The 1925 crop is characterized as "both heavy and of exceptional quality." Practically every district in Ontario reported an increase in honey production over 1924. The Association bends its main marketing efforts to the United Kingdom and other European countries.

Intelligence of Bees

By John H. Lovell.

I was much interested in Allan Latham's article on the question, "Do Bees Reason?" Much, as he says, depends on definitions. I think, however, that there is not the slightest doubt that bees possess intelligence. Not, of course, intelligence in the same sense, perhaps, that human beings manifest, but they certainly behave intelligently, as I think the following illustration shows conclusively. I should define an act as intelligent when the behavior of the bees was modified by experience. Here is an example.

Bees know that flowers in general yield nectar, but they cannot distinguish the nectarless flowers from those which yield nectar, or the flowers which have the nectar concealed in such long tubes that it is beyond their reach. They learn this by visiting them. I have frequently seen honeybees probing in vain the flowers of the bee larkspur, the sweet William and other flowers with nectaries or tubes so long that the bees could not reach the nectar. After awhile they flew away and, remembering their experience, they did not return again except at long intervals. On such a flower I placed sugar syrup. After awhile a bee found it and returned again and again as fast as it could fly back and forth to the hive. Other bees also came a little later and continued to come as long as I supplied the sweet liquid. This was intelligent behavior. The bees made observations, led by their general knowledge of flowers. From their experience, they drew conclusions which governed their subsequent behavior. They also displayed memory. In the first case, they did not return, finding no nectar. In the second case, finding a sweet liquid, they promptly returned and continued to do so. They made observations, exhibited memory, and made simple inferences. This required intelligence. I do not suppose the bees reasoned consciously, as a human being would do, or that after flying away they gave the matter further consideration; but, at the time, their behavior was intelligent—that is, their behavior was modified according to their experience.

Maine.

Save Your Bees

There may be better ways to introduce bees than this way, but this is a sure and easy way. You can save the lives of many bees. If you have two weak swarms that you wish to put together, take the poorest queen out and put the hive over the other

with a screen between them so the swarm without queen cannot get out of the hive. I left them this way for three nights and two days. The third night I took out the screen and let the bees together; they flew around the hive in the morning, but towards night they were out at work. If this screen is put so the bees can see each other they soon become friendly and will not kill each other.

Louie Merritt, Wis.

A Burglar Proof Beehive

Complaints of thieves stealing honey from the hives are common. Numerous clever plans have been devised to catch or frighten the thieves, but it remained for Hon. F. H. Auld, Deputy Minister of Agriculture of Saskatchewan, to devise a burglar proof hive. Auld's bees are kept in secluded spots, hidden by shrubbery, on the Parliament



grounds at Regina. So dense is the shrubbery that persons passing within a few feet may be unaware of the presence of the bees. This condition makes it easy for mischievous persons to remove supers of honey after nightfall without being seen.

After two or three experiences of the kind, Mr. Auld placed a ring in the center of each hive on both sides and placed a chain through the rings and around the hive, as shown in the photo. The chain is fastened with padlock, which makes it impossible to remove the cover until it is unlocked. Evidently, the thieves did not want anything but the honey, for there has been no trouble with any of the locked hives.

This is somewhat on the plan of a device used in Italy for the same purpose. This is the only country where the editor saw padlocked hives of bees, with nothing open but the entrance.

Missouri Registration

Missouri Association Wants 1,000 Members

The Missouri State Beekeepers' Association has set its 1926 membership goal at 1,000. It is estimated by the State Board of Agriculture that there are 40,000 beekeepers in Missouri, and now that the state appropriation for bee inspection is cut off and foulbrood is all over the state, the goal should be easily reached. The association had nearly 500 members last year and it is getting more strongly organized through county associations this year.

The biggest thing the association is working on is the passage of a bee law requiring the registering of apiaries and the payment of an inspection fee of ten cents per colony. This will pay for and simplify state inspection.

The executive committee is working on the wording of a law that will have "teeth" in it and it hopes to replace the present Missouri law.

Ninety per cent of the members of the association are small beekeepers. The officers have less than 100 colonies each. Very few commercial beekeepers belong to the association. It is the small, progressive beekeeper of Missouri who is pushing the new law, which is gaining momentum rapidly.

Clay T. Davis, Secretary,
Cameron, Mo.


Polish Beekeeping

The season of 1925 was very unfortunate for most of the Polish beekeepers, owing to the incessant rains in the month of July. Many beekeepers had to feed their bees, instead of securing a harvest.

The 26th and 27th of September last were the days of the celebration of the fifty-year jubilee of the "Progressive Beekeeper," founded by Professor Ciesielcki. There was a congress of the beekeepers of Poland, celebrating also the regaining of our political liberty, after 120 years of slavery to other countries.


A beekeeping exhibit was held at the same time and many current questions were discussed. Resolutions were passed against the importation of bees from other countries to prevent diseases and in favor of the foundation of experimental stations for scientific purposes, especially for breeding up queens from our domestic race of bees which is in no way inferior to the bees of other races.

Ks. W. Kranowski,
Zamoste, Poland.



EDITORIAL

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Spraying Trees by Aeroplane

Through the courtesy of Mr. W. H. Force, we are in receipt of a clipping from the Champaign News-Gazette (Ill.) explaining that there is a project for spraying peach trees, with a dust preparation, similar to the method in use for the control of the boll weevil. It is said that much less material is needed than when sprayed from the ground and the result more satisfactory.

The question is raised whether this dusting from the air will not be more injurious to bees than the methods at present in use. If the dusting or spraying is done at the proper time, when the petals have fallen, there will be but little danger to the bees. If the orchardists, whether peach or apple growers, understand their interests, they will be just as solicitous of the bees' safety as the beekeepers are, for it has been clearly shown, in fruit growers' magazines, as well as in the bee magazines, that the bees are absolutely necessary in the fertilization of most fruit blossoms. We do not believe that there is any need to worry about this. The main need is to inform all the fruit growers of the actual facts in the fertilization of blossoms. Spraying, for the destruction of injurious insects and bacteria, is indispensable and is with us to stay. But all intelligent fruit growers will see that the bee is protected.

As to the possibility of success, with aeroplane dusting, there appears to be little doubt about it. The only question is the advisability of doing it in other than immense areas. It is very practical in the boll weevil control.

The Mating of Queens

We are in receipt of a bulletin on the above subject from the well-known scientist, Mr. Joseph Tinsley, of the West of Scotland Agricultural College.

I wish we could come to the same conclusions as this bulletin indicates—i. e., that queens usually mate with drones from their own hives. Our experience is that queens mate sometimes a mile or more from the apiary and that, in a country where common bees are plentiful, it is difficult to secure pure Italian matings. Localities and conditions evidently have influence upon results. If we could be sure that each queen would mate with a drone from her colony, all that would be required would be to supply that hive with the drones desired, of whatever race we might select.

Brood Never More Valuable than Now

This is the time of the year for the bees to breed heavily, in all the states north of Dixie, and even in some of the Dixie states, for the crop comes in a few weeks and the colonies must be strong. If bees are to be transferred from box hives, not a square inch of the brood must be destroyed, unless it is drone brood of the race not desired. Our colonies will harvest a crop in proportion with their ability to breed from now on. Good queens, plenty of honey, plenty of pollen—those are the requirements. If we must feed, much thinner syrup than for winter food is wanted, for the bees need plenty of water to produce the pap. Don't let us forget it. A

square inch of comb may contain 57 developing workers. The greater the number of square inches of brood that the bees produce within the next two months, the greater the crop will be, all other conditions being equal.

Some old beekeepers, who have transported bees often, from one location to another, suggest that their arrival at new fields, with new domains to discover, broadens their ambition and causes them to become more active. I believe there is something in this, for, whenever I carried bees to new spots, they appeared to use more energy. Is it only a result of imagination, or is it a fact?

Rearing Brood Without Pollen

In answer to a question in a former number, we made the remark that bees cannot rear brood without pollen. In answer to this statement one of our readers, Mr. E. M. Johnson, of Wisconsin, states that he has had bees rear quite an amount of brood without any pollen. This is possible if the honey which they use is more or less laden with pollen grains, as is usual in the honey of the fall crop. Huber tried to have bees rear brood with only sugar syrup and failed altogether, while he failed altogether to have bees build comb without syrup or honey. This is how he came to declare that which has been found true afterwards, that comb is built from the digestion of honey, while pollen does not contain any of the constituents of beeswax, its mission being only to sustain the bees while at work, or in rearing the brood.

The bees have an apparatus, called "the stomach mouth," which serves them to separate the pollen grains from the honey in which they float. But this process of separation is carried on more or less efficiently and, in seasons of great production of dark honey, much pollen is still contained in the honey. Heddon, who was most unsuccessful in wintering bees in the eighties, often complained of the fact that honey, in the fall, in Michigan, was too much loaded with pollen to make good winter food. Such honey is indeed poor food for winter, as it overloads the intestines of the confined bees; but it is excellent spring food, for it helps the bees in breeding, since it contains some of the materials which help to produce the pap fed to the larvæ. We may be sure that Huber was right when he wrote that bees need pollen to rear brood.

How Far North

A letter from W. D. Albright, of the Beaverlodge Experiment Station in Northern Alberta, advises us that they are having an unusually mild winter. Concerning the bees, he writes as follows:

"We have not lately counted the bees, but the chief of the station's apicultural division is afraid they are having a rather hard winter on account of the mild weather keeping them too active, and may run low on stores. They have been flying on a number of occasions. I believe the chances of successful wintering would be better farther north, where they would remain more quiescent."

Albright is nearly as far north as Wrangel, Alaska, and when they talk about bees doing better farther north it makes us wonder how far north the limit of successful beekeeping may be.

Sainfoin Seed

We have at last received some 60 pounds of fresh sainfoin seed from Paris. As about half of this is already spoken for, those who wish to try it must hasten. Single pounds will cost them 30 cents and mailing expense. First come, first served.

The Location of the Russian Experiment Station

On page 128 of the March number, the editorial remarks concerning Tula give its location as 100 miles north of Moscow. It should have read 100 miles south. If you examine the map of Russia, you will find Tula as appearing very close to Moscow. That is due to the magnitude of the country. Russia in Europe contains over two million square miles and Russia in Asia six and a half million more, as against a little over three and a half in the U. S. These were the measurements previous to the World War. Even as small an area as the Caucasus contains a number of provinces as large as some of our states: Terk, Kutais, Daghestan, Elizabetopol, Baku, Erivan, etc., most of these erected now into independent republics. And in the Caucasus are several different breeds of bees, as well as men of different races and religions. Those of our readers who have seen the photos published by us from the Caucasus, from 1917 to 1921, have noticed the various styles of clothing as well as the different types of men and of hives. We still have some twenty odd of these photos to be published.

Winter In England

Not so very long ago, in the American Bee Journal, we quoted a Cumberland farmer who, when asked at what time they had summer in England, replied: "I am not exactly sure, but I believe it was on a Wednesday, last year." But here is where they are making up for their cool summer: The British Bee Journal for February 25 gives a letter from Cornwall, in date of February 18, saying, "Nature is getting a move on, and one can often see a splash of colour in the form of crocuses, wallflowers, etc., whilst the arabis is becoming a mass of bloom."

How many flowers do we see in the meadows and the woods by the middle of February, east of the Rockies and north of the Ohio? Yet we are, here, at the forty-second degree, at the same latitude as Madrid and Naples, where there never is a frost, while the most southerly part of England is at the fifty-first. Climates are surely varied and we cannot very properly ridicule the other country, for we have our faults too.

Watch for Foulbrood

Even if your apiary has never had any foulbrood, it is well, nowadays, to watch for it in spring. Those who have plenty of experience say that there is more danger of it in spring, because the healthy colonies may find honey in hives whose bees have died during the winter, and this may be contaminated. Also, they tell us that, if a colony has had it and it has been apparently cured, they may have a little old honey containing germs and at this time they may reach it, as they are using up the last of the old stores. When fresh honey comes in, there is less danger of contagion. But let us keep our eyes open.

But do not mistake starved or chilled brood for foulbrood. Chilled or starved brood is in patches and every larva is dead, while foulbrood is irregular. Neither need we worry about larvæ that are dead, but white.

The Bee Louse

From the correspondence I have had regarding the first contribution in the March number, that interesting article from A. B. Champlain, some of our readers evidently imagine that we are "up against" another scourge in beekeeping. Please, do not get worried. I have been acquainted with the bee louse since the sixties, or for considerably over 50 years. I often picked one or more off imported queens. They are easily seen and easily removed. I have never yet seen a single one in our apiaries. Occasionally, we hear of a hive badly infested with them, in Europe, especially in the southern part. But Baldensperger, who lives in southern Europe, does not consider them as other than a curiosity, because their presence is so rare. If foulbrood was no more dangerous than the bee louse, we could afford to neglect it.

Registering Apiaries

Can the registering of apiaries, by law, be made practical and profitable for the country at large?

Let it be understood at the outset that, if we can get all the bees in a country registered, it will be of great advantage in curing or preventing disease. I don't think anyone would deny this.

But, where is the greatest danger from disease? Is it in the large apiary? Yes, probably at some time or other, because the owner of a large apiary may not conduct his management of apiary in a proper manner. I have often mentioned a large beekeeper who told me, before I had ever seen foulbrood myself, that it was out of the question for a beekeeper ever to get rid of foulbrood. He was right in saying this of himself, for his method of management was really "lack of management." But such men sooner or later have to change their methods or lack of methods, or go out of the business.

For that reason, I believe that the greatest danger from disease is in the small apiary of one or two hives, hidden in the corner of a fence, or under the dense shade of a cherry tree and its numerous sprouts, or perhaps back of a chicken coop, most probably in a spot where the assessor would never find it. The owner is careless of it. He does not think the bees are worthy of mention; he has never paid taxes upon them.

The practical, active, commercial beekeeper is the one who will list his bees with the official. But he is the one who is least likely to cause trouble by mismanagement.

Thus, to my mind, the law which is passed in some states to compel the registering of colonies of bees will have but little effect upon the possibility of decreasing disease. It is very much with this as with all questions where the man most interested in their solution is still ignorant of what he should know, in order to succeed. We would have very few of the insects or other pests injurious to fruit trees, if every man knew what the large orchardists are compelled to find out, in order to succeed. The little fellow, the man who has but one or two apple trees, is the one who propagates disease and he make laws to register apiaries. But think how many laws does it unknowingly, in most cases.

Education is the important thing. It will not hurt to we have on the statute books which are never enforced, laws much more important than this. Let us do our utmost to educate the owners of bees in what they should know. Every one of us can help in this.

The Wyoming Beekeepers

Wyoming is coming to the front. They issue statements from the State Entomologist office and the Beekeepers' Association showing that they are awake to all modern questions. They want a beekeeping laboratory from Uncle Sam, for the Intermountain region. They want good laws on foulbrood, and organization for the cooperative sale of honey, etc. It is only a few years since they had cowboys and Indians and buffaloes running wild over the state. They show us that the world does not stand still. If you will read my "Recollections" on "Selling Honey to the Indians" in the May 1925 number of this magazine, you will appreciate the distance traveled by progress since the time that happened.

Inaccuracies in Newspapers

We are accustomed to incorrect statements from newspapers, but Mr. E. H. Bangs, of Chicago, sends us a clipping from an Orlando, Florida, newspaper which caps the climax. In it the statement is made that bees carry the nectar "in a basket on each leg" and that some of it is spilt at each place they alight. Evidently the newspaper reporter was told about the "pollen" and mistook it for "nectar." Other equally ludicrous statements are made. If the political information which is so lavishly given us by the newspapers is not more correct than their beekeeping information, we are not likely to judge correctly of world events.



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A huge co-operative sign with honey the central feature.

Fritze's novel honey sales room. The sign around the corner says "Walk in. Help Yourself."

Bees in the Cut-Over Country

Honey Sources of Northern Minnesota, Where Once Grew the Finest of White Pine Forests

By Frank C. Pellett.

GREAT changes have taken place in this country of ours within recent years and not all of them have counted for progress. In the states of Michigan, Wisconsin and Minnesota where, a few years ago were to be found the world's finest white pine forests, we now find immense areas growing up to poplar thickets, scrub willows and other trees of little commercial value. Fires run through these great tracts at frequent intervals and destroy the young growth of even these poor successors of the once mighty forests. Imagination can hardly picture the desolation that remains after the passing of a forest fire. About one-half of the total area of Minnesota, including all of the northeast portion of that great state, is within this original forest area. It is a beautiful region in its unburned sections with lakes interspersed among the trees and here and there small green meadows. Some areas have been cleared and well kept farms have replaced the blackened stumps that remained after the fires had passed.

In the last week of June, it was my privilege to make a long journey through the cut-over region of Minnesota in company with Prof. Francis Jager and his assistant, James Thompson, of the University. June is the time of the honeyflow from white and alsike clover; and Minnesota is a famous clover region. Probably a more dependable honey producing region would be hard to find, although the average yields are perhaps not as high as farther west, in the sweet clover districts of the Red River Valley.

American lumbering is a most wasteful process. A stand of timber is logged off with no provision for renewal and no care is taken to protect the young growth. Only the logs are removed; the branches, tops and other debris soon dry, so that they will burn like tinder. The slash



Professors Jager and Thompson in the burned over region.

is often deliberately burned and not infrequently such fires escape and burn over immense areas before they can be stopped.

The forest fires offer a sad chapter in the history of Minnesota, for not only have valuable forests been needlessly destroyed, but hundreds of farmsteads and numerous towns have been burned, with the loss of many hundreds of human lives. When we stood beside the mound where were buried in one grave more than 200 unidentified bodies, following the Hinkley fire, and again beside a similar mound where another wholesale burial was made,

after the Moose Lake fire, we were reminded what a price is exacted for human carelessness and greed.

It is only when one spends several days in crossing back and forth through the cut-over country that one comes to appreciate what a great area it covers. Although hundreds of farms are to be found within its borders, but a small part of the whole is utilized for any purpose under present conditions. The soil has a natural affinity for clover and, wherever there is an open space, both the white Dutch and the alsike clovers thrive perfectly. Along the logging roads, the woodland paths and margins of streams, in meadows and pastures and along the highways, everywhere the clover was blooming.

In the settled neighborhoods, where dairying is followed, there are many splendid clover locations. In the burned-over areas, where the fires have been recent, the whole country was covered with fireweed as far as we could see. Fireweed honey is famous for its fine quality and the quantity that could be gathered is beyond human imagination, were there but bees enough to harvest the crop. All the way from Michigan to Minnesota and north and west, through Canada to the Pacific Coast is good fireweed range. I found it so in woodland and bush regions of Manitoba, in north Saskatchewan, very far north in Alberta and throughout most of British Columbia, even to Vancouver Island.

Much of this Minnesota cut-over area is unsettled. We sometimes drove as much as twenty to forty miles between towns and sometimes

half that distance between houses. The unoccupied fireweed locations succeed each other with unending regularity.

The chief objection to fireweed is its transient nature. After a fire, there will be three or four years when large honey crops are harvested. By that time the new growth of young poplars and other plants will be crowding and the fireweed bloom will diminish. Raspberry, however, usually follows with big yields of equally good honey. Wherever the sunlight can penetrate, clover will come, also. We thus find three good sources of light honey of fine quality common to a wide range. Where all three—raspberry, clover and fireweed are abundant, the beekeeper enjoys a large measure of security and prosperity. Nowhere in America is there more unoccupied territory and nowhere need he have less fear of overcrowding the bee range. Raspberry is the first to bloom and soon after this is past the white and al-sike clovers come on. In midsummer, the fireweed, also known as willow-herb or epilobium, comes into bloom. If there is sufficient moisture present the fireweed will continue opening new blossoms as the old ones fade, until frost appears.

A honeyflow from fireweed is a pleasant experience. In every direction stretch away the acres on acres of purple blossoms with the bees humming busily and the apiary fairly roaring, as the field force comes and goes. There is something about the apiary during a honeyflow that gets into the consciousness of the beekeeper with a

stimulation like a mild intoxication. Once a man has had a season of it he always feels drawn back to the bees when the flow is on. He can no more explain the thrill of it than a young man can explain the attraction of his sweetheart. The excitement of the bees, bringing in the fresh nectar and converting it into honey seems akin to that of the old-fashioned husking bees or harvesting, when every man strove to the utmost to outdo his fellows in getting in the corn or shocking the wheat. Our present-day methods may be more efficient, but we have lost much in the lack of intimate human touch with our neighbors which came with spelling schools, barn raisings and husking bees. The urge of thousands of busy insects, working together for a common purpose, arouses the sleeping instincts of the beekeeper and revives in him the same emotions which he felt when he became one of a party of friends to help with the building of a barn or the getting in of a crop, without thought of the day's wage. There is a fraternity among beekeepers which we find among no other class of workers. Perhaps it is because beekeeping attracts men who retain something of the co-operative spirit.

A Northern Summer

It was at the home of Frank O'Donnell, at Rush City, that I first realized the difference in the length of the summer day in a few hundred miles of northward travel. Each hundred miles northward adds perceptibly to its length. Mr. O'Donnell faces his hives to the north, in the summer, in order to get the early

morning sun and start the bees early to work. During the heat of the day the entrance is in the shade and the sun shines in again late in the evening, thus prolonging the hours of labor at the hive. The long days during the honeyflow must be in part responsible for the large crops in northern latitudes.

From my standpoint, beekeeping is the best occupation open to a nature lover in the north country. His bees keep him busy in the open during the pleasant summer weather and with the coming of winter they are put away snugly in the cellar with little attention from their owner until spring comes again.

The bees in that region are generally wintered in the cellar. The cellars are usually dug in a well drained spot in the side of a slope. The country is quite level and few hills such as we know in southern Iowa and Illinois are to be found. The interior of the cellar is lined with cedar poles, which are readily available and which resist decay. Over the top is banked the dirt removed in making the cellar. There the bees spend the long period of cold weather, from November until April. Cellar temperatures reported to us varied from 40 to 46 degrees. Some beekeepers advocate lower temperatures than others. The lowest we found was where one stated that his bees winter best at from 40 to 42 degrees Fahr., and that when the temperature rises higher they get uneasy. We did not find anyone who advised higher than 46 degrees for cellar wintering.

One man, Bert Smith, of Hibbing, keeps his bees in double-walled



After the forest fires, the fireweed covers immense areas in country like this.



Apiary of W. A. Fritze, in cut-over country of northern Minnesota.

hives, even though he winters in the cellar. The protection in spring and fall makes the extra cost a good investment. The double-walled hives are especially valuable during the changeable weather of early spring and serve to protect the brood through this difficult period.

There are some Carniolan bees in northern Minnesota. Prof. Jager has some in the hands of a local beekeeper who is carrying on a race experiment for him. W. A. Fritze, living north of Duluth, also has one apiary of Carniolans. He thinks them better than Italians for the north country and mentions especially the fact that they fly freely quite early on cool mornings. It is to be hoped that this interesting race will be tried on a sufficient scale to

demonstrate its true merit. One would expect that bees coming from the mountainous parts of Europe would be better adapted to our own north country than would be the bees coming from a mild climate like Italy. Prof. Jager hopes to secure a comparative test which will be of real value.

Local Selling

A thing of special interest to the visitor is the selling methods in use by local beekeepers. The country is sparsely settled outside the cities. There are splendid roads and much travel by auto. Most of the bee men visited conduct some kind of roadside advertising for the sale of their product. The prices received are generally from 16 to 20 cents per

pound. The first of these advertising stunts to attract our attention was that of Joe Kremenski, not far from Duluth, on the road to Virginia. Beside the road was a beehive with a "Honey for Sale" sign painted on it which could be seen for a long way in either direction. He has a number of hive-bodies and supers with such signs painted on them. He can change the arrangement from time to time and thus vary the sign. The picture shows how it looks. Across the gateway is another large sign calling attention to the "Honey for Sale." He sells most of his crop to passing motorists at 16 cents per pound, in five-gallon cans, or 20 cents in five-pound pails. For a one-quart jar he gets 80 cents.



Apiary of Charles O'Donnell, Rush City, Minnesota; 100 pounds average for ten years, from clover and basswood, about one-third of the crop basswood.

Kremenski's place is striking and unusual and few are likely to pass without having their attention called to the nature of his business. We thought that he was doing very well at honey selling, but when we were approaching Central Lakes we saw another large signboard indicating that Frieze's pure honey was for sale one-fourth mile ahead. A little farther on we saw a small roadside building with signs which could be seen from any direction from which one might approach. Driving up we were surprised to read the sign "Welcome. Walk in and Help Yourself." There was no one present, but inside the building was honey in various sized containers. With each container was a card with price marked plainly. Five-pound pails were \$1.35, quarts 90 cents and pints 60 cents. The proprietor was away at an outyard, looking after the bees, but we found a neighbor near by who told us that Mr. Frieze had sold \$1,000 worth of honey in this novel manner and had only lost \$7 in the whole season. A stranger passing by stopped to pay for a can of honey which he had taken several months previously when he was unable to make change. In all my travels I have never seen anything like this roadside stand.

Every passing stranger is invited to help himself and trusted to make proper payment. There was even a box with small change, to make it easy to make change in payment. When we read the newspaper stories of holdups and robberies so common of late, it seems unbelievable that a beekeeper could place his product on sale in this manner and have it taken away by unseen customers who seldom fail to leave the proper payment. It goes to show that, after all, most folks are honest and that it is only the exceptional individual who attempts to profit at his neighbor's expense.

Taking everything into consideration, this cut-over country is very attractive to keep bees. There is plenty of unoccupied territory, along hard roads which can be traveled every day in the year. There are large cities within easy reach and there are good markets at the door. The quality of the honey is good and the yields fairly dependable, although not quite so heavy as those in the sweet clover districts farther west. The lakes and streams are well stocked with fish and there is still game in the woods. Altogether it is quite a satisfactory place to spend the summer season when the bees are bringing in the honey.

bee, which may be regarded as only about 50 per cent effective as a pollinator, because it possesses to a much smaller degree the habit of working one kind of a flower at a time. And last, but not least, we are reminded that the honeybee is the only one of all insect pollinators that man has under his control and can provide in large numbers at will.

Iowa.

Rea Gets a New Slant on Package Bees

Geo. Rea, visiting among the southern folks, found in certain regions shippers complaining bitterly of having to send bees in combless packages, whereas in others the package men had no complaint whatever. On searching for an answer to this apparent contradiction, he found that in most regions where complaints were made, the bees had already been through a heavy honeyflow, whereas in other regions they had not. In shaking frames of bees into a package, the old bees drop off most readily, the only ones remaining, when they are not shaken clean, being the young bees. When these old bees have been through a honeyflow their rate of mortality is high and it follows that packages made up of them will not reach their destination in good condition.—(From Beekeeping News, New York, Feb.)

Pollination and the Honeybee

Reviewed by O. W. Park, Ames.

(Those who have read the praise we gave to the above named bulletin, in our editorials of March, may enjoy reading also the following appreciation received from Dr. O. Wallace Park, of Ames. Dr. Park calls attention to the mention, in this bulletin, of an article, on the Bing cherry, by Elihu Bowles, in A. B. J. of December 1924, page 558. Those who have the magazines on file will find renewed pleasure in reading this article, as it emphasizes the usefulness of honeybees almost if not quite as much as does the article on page 70 of our February number, on those 1200 acres of apple-trees.—Editor.)

Bristling with fundamental facts bearing on the relation of the honeybee to crop production, Publication No. 52 of the Indiana Department of Conservation appeals to the writer as being the most enlightening brief statement of the subject that has come to his attention. The author, Harry F. Dietz, of the Division of Entomology, is to be complimented upon the production of a condensed work which is scholarly yet simple. The facts presented are of great interest to the beekeeper, but are of still more importance to the farmer, the gardener, and the fruit grower.

It is to be hoped that this valuable bulletin may have a wide distribution.

After showing what pollination really is and how it takes place, the author describes and illustrates some of the special adaptations of the flowers in certain families to pollination by insects. In the rose family, typical examples of pollination in pome, stone, and berry fruits are described. In the legume family, it is described as it occurs in alfalfa and in several of the clovers. The sages are used to represent the mint family, and the dandelion to typify the conditions found in the thistle family. The author's descriptions of floral parts are made effective through the use of numerous simple drawings.

The paper closes with a strong presentation of the role of the honeybee as a pollinator. It is stated in no uncertain terms that the honeybee represents the highest point that has been reached in the insect world as a flower pollinator. The author states that records show that of 488 different kinds of flowers which are visited by insects, practically all of them are visited by the honeybee. The nearest competitor is the bumble-

Sweet Clover Seed Crop

Sales of sweet clover during the past few years have been increasing by leaps and bounds, but seed production in this country and in Canada has kept pace with the better demand. In fact, production last year was more than ample to take care of the demand and probably the carry-over is second or third largest on record. The important seed-producing districts have shown a steady expansion, and new areas of surplus production are springing up each year, which make it difficult to estimate the size of the crop. At the same time, however, portions of some districts have not found seed production very profitable and have used more of their acreage for pasturing and for turning under.—(Crops and Markets, Vol. 2).

Bee Sales in Holland

Annual bee sales, by auction methods, are held in Holland during the early part of July. A second meeting for this year has just been held, where more than 1,536 hives, aggregating each about 15,000 bees and a total of more than 30,000,000, were offered. Most hives sold rapidly at rates of \$1.40 to \$2.20 per hive.

Making Increase in Spring

By C. P. Dadant.

AN enquirer wishes to know how to divide the colonies in spring and at what time. Another asks whether to just order queens and divide, rather than buy bees by the pound.

Division or increase of the colonies must depend upon several conditions, as to time. Advice which might be given at the opening of an early, prosperous season, might not answer at all after a hard winter. Three things are absolutely necessary to make successful increase—bees, queens, and food.

One might buy any number of queens; those queens would be useless unless they had enough bees to keep the brood warm and take care of it after it hatched. That is why dividing early would not do, even if we had the queens to supply the divisions, unless we also had the bees. The purchase of bees by the pound supplies a great need in early spring: it provides the bees to feed the brood that will be field bees at the proper time.

Let us suppose that we make our increase in April, with bees by the pound and queens purchased in the South. The bees received April 20 will begin to breed at once, if conditions are right and they are supplied with combs and food. The brood reared during the last days of April and first days of May will make field bees thirty-five days afterwards (twenty-one days for changing from the egg to the worker bee and fourteen days to mature in the hive and become a field worker). So the bees hatched at that time will be just right for a crop opening in the first fortnight of June.

The figures we give as to the crop are based upon conditions in the middle states. In the northern states or the western provinces of Canada the dates will change according to the localities, of course. In the South, earlier conditions will prevail; that goes without saying.

If we bought only queens, and divided our colonies, there would be too few worker bees to take care of the hatching brood or even to keep the hives warm enough for the eggs to hatch. The laying of the queens, also, would be restricted, for the bees would not offer food to them as freely as when they are anxious to see plenty of brood. Bees are evidently like mothers, happy to see a numerous, thriving family, but, like careful mothers, they do not wish to see an increase which they cannot care for.

The condition of the bees pur-

chased has much to do with the success of the colony. If the bees which are sent from the South to the northern beekeeper are young bees, they are just right for taking care of brood. If they should be old bees, carried over winter, they would be mostly unfit for brood rearing, as their nursing glands would be atrophied from disuse. So it is important to have young bees.

Combs are needed. If the divisions have to build their own combs, they will spend a great deal of labor and a great deal of honey in building them. This will lessen their efficiency in brood rearing. Combs cost fully an average of ten pounds of honey for each pound of comb. Some experimenters tell us that bees may build comb that will not cost them more than seven pounds of honey per pound of comb. But they have nearly always overlooked something. Some other experimenters say that it takes twenty pounds of honey to build one pound of comb. They have made their experiments in unfavorable time and it has cost more. Comb building and wax secretion are very much like butter production in the cow. The amount produced depends upon the favorable or unfavorable conditions under which the production is carried on. It takes more food to produce the same amount of butter in cold weather than in warm weather.

The temperature has much to do with the greater or less breeding. The hive must be warm if the bees are to urge the queen to spread her brood. She always lays her eggs in the warmest spot and spreads her brood as the hive gets warmer and the numbers increase. So we will notice that a shipment of three pounds of bees will not spread its brood very much until the first young bees begin to hatch. When this takes place, as the number of them increases daily, there is a daily enlargement of the brood nest. Many practical beekeepers keep their hives protected, just as they do in winter, until the warm days come, in order that the bees may find it easier to keep the hive warm.

Food is absolutely needed; honey or syrup in plenty. If any of you have read the little book of that able queen breeder, Jay Smith, entitled "Queen Rearing Simplified," you have noticed how much stress he puts upon feeding, feeding, feeding. Plenty of bees, plenty of food, warmth, good queens, if you wish to succeed. It is then that honey is better than syrup, for honey contains vitamins and natural elements

that are not found in "factory-made" sugars. So this is the time to feed honey. You may feed honey that would not be suitable for winter food, when the bees can fly daily, and it will probably be better than sugar syrup.

But there is one element which is fully as necessary as honey: that is pollen. If you have read the work of Huber, you have seen how he proved that the little pellets that the bees carry on their legs are useless to make comb, but are indispensable to raise brood. He deprived bees of pollen and kept them confined. They would not raise brood, but built comb. Then he deprived them of honey, allowing only a small quantity of it and a plentiful supply of pollen; then they ceased building combs, but reared brood. So we need a full supply of pollen if we would have the bees rear brood largely. That is why there is but little brood reared until the blossoms come. You may feed them flour, in the open, and they will use it quite largely for brood rearing, in spite of the denial of some of our experts. We fed hundreds of pounds of flour in open boxes, in the old days, and we are sure that it promoted brood rearing early in the season. Of course, flour would not keep long, although the bees mix it with honey; so it is only a temporary makeshift. But it is sometimes useful.

To recapitulate:

Plenty of young bees to feed the brood.

Good, prolific queens, well fed.

Good worker combs, or, at least, sheets of foundation.

Warmth in the hive. This is where we found it profitable to have colonies in a hothouse. But it was unpractical in other ways.

Plenty of food, both honey and pollen.

With these requirements fulfilled, you may increase endlessly the number of your colonies. Langstroth wrote:

"With ten strong stocks of bees, in movable-comb hives, in one propitious season, I could so increase them, in a favorable location, as to have, on the approach of winter, one hundred good colonies. But I should expect to purchase hundreds of pounds of honey, devoting nearly all my time to their management, and bringing to the work the experience of many years, and the judgment acquired by numerous lamentable failures."

Remember that, when you make increase, you should at all times be-

ware of robbing, if you make the increase when there is no honey in the flowers, or no flowers from which they can secure honey. Remember that apiary operators are most successful in a good honey season. At other times you are working against natural conditions and should be very cautious in all that you do.

The manners of making increase are as varied as the methods of management of apiarists. Hives may be divided into two parts, placing the removed half onto the stand of another colony, which is, itself, moved to a new spot. That is making one increase from two colonies. Or the divided hives may be cut up into four or five parts, giving two combs of brood and as many bees as possible to each division, together with combs and a queen, if one has bought queens. This can only be done in warm weather, near the time of swarming. Each of these nuclei may need help later in order to become a strong colony.

But the principles enunciated at the beginning of this article must be followed. Bees, combs, queen, honey and pollen. If you wish to produce honey at the same time that you make increase, you must not take increase from your strongest colonies, for they are the ones that will produce most. We always aim to make the increase from colonies that would have their force too late for a plentiful harvest. If you could make your increase for the crop, well and good, but you will find that, in most cases, you will have to make it upon the crop.

Miller Memorial Museum Receives Valuable Samples of Honey

A very valuable gift of honey samples has just recently been sent to the Doctor Charles C. Miller Memorial Museum by Mr. R. A. Morgan, of Vermilion, South Dakota.

This lot of samples includes white clover honey put up in Columbia County, Wisconsin, in 1882, 1883, 1884 and 1885, and other samples put up in Clay County, South Dakota, in 1901, 1905, 1908, 1910, 1915, 1920 and 1925. The sample from 1908 is said to contain foul-brood germs, and an attempt will be made to inoculate several colonies of bees from this sample.

A very important fact is shown in this honey, and that is that in glass jars, exposed to the light, honey cannot be kept indefinitely. Samples of honey put up as late as 1915 have become dark and have lost the greater part of their flavor. The samples from 1882 and 1885 are

almost black in color and more like molasses than honey.

These samples came to the University at the most opportune time, as the University has a bee project on the new Purnell fund that will include the study of honey in relation to winter stores. Additional samples from any section of the United States will be appreciated for the Museum and also for study. A complete history of such samples should be sent in.

H. F. Wilson,
Custodian Miller Memorial Library,
Madison, Wis.

Roadside Markets

By E. G. Carr.

Within the last two or three years there seems to have been a regular epidemic of roadside markets. While the festive "warm puppy" has been much in evidence at these markets, many other articles have been disposed of through them. The opportunity to thus distribute honey has not been overlooked.

Some markets have been devoted to this article alone, in others honey has shared the place of honor with other commodities.

Some persons have questioned the value of roadside markets, particularly where fresh (?) vegetables have been one of the principal lines, because there has been deception and unfair dealing. While these things have hurt both the unfair dealer and the one who tried to give a square deal, it is quite probable that there will be a weeding out of the dishonest and a survival of the fittest.

These roadside markets are primarily a summer business, although some of them make a pretense of doing business all the year. Apparently the auto trade is what the roadside marketman has in mind. Since, then, the greater part of the business is done in the summer, it is readily seen that a great advantage comes through the distribution of honey via these markets.

There are still those who believe honey is a food to be eaten only in cold weather. This being true it is apparent that the honey which is moved from the roadside markets is just that much gotten into the hands of the consumer at a time when it might be considered out of season. When once it is in the house it is inconceivable that it will be stored away until cold weather. It is probably true that honey purchased at the roadside market will be used before winter. If the quality has been pleasing, the customer has acquired an appetite for honey and will get a further supply from his grocery or from the same market.

Another advantage in this manner of distributing honey is the tendency it has to draw a certain amount away from the great market centers, thereby reducing the probability of a glut with its consequent disastrous prices for all.

In the average grocery honey gets a very small chance for display, and

does not appear so very different from many other commodities in glass. At the roadside market, however, there is a greater display made of honey, which brings it more forcibly to the attention of a prospective customer. This undoubtedly results in a sale of honey to a person who would not purchase at the grocery.

While it is true that many honey producers are not advantageously located with regard to operating a roadside market, there is abundant opportunity for many more producers to thus move their product.

Because honey is sold at a roadside market by the producer is no good reason for underselling. The seller is entitled to pay for his work whether he be the producer or the groceryman.

Personally, I believe the person who takes honey from a roadside market and pays cash should have some slight advantage.

Above all else, one thing should be kept constantly in mind, which is, the honey must be of such quality that the customer will remember it with satisfaction and will embrace the opportunity to make further purchases. Many, it is feared, are concerned only with the present sale and are not careful enough to insure making a satisfied customer. The dissatisfied customer will undoubtedly advertise your roadside market and may condemn them all. On the other hand, the pleased customer is likely to prove a splendid advertising asset.

Pennington, N. J.

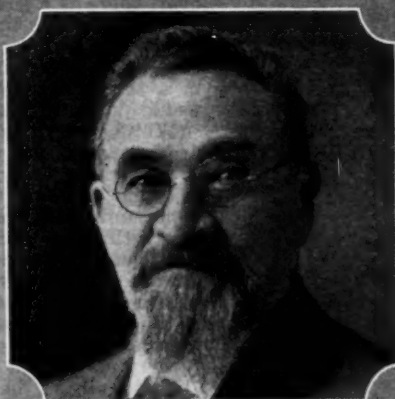
The Results of Two Kinds of Advertising

Is your newspaper advertising attractive? One Illinois bee man has found a good stunt that brings business. His usual advertising space was not bringing results and he felt the money thus expended was being wasted if it did not bring results. Some housewife suggested this idea to him and, taking her advice, he now has her to thank.

He surprised his good editor one day by asking him to change his ad. The editor did not believe in changing ads, but he could not help himself in this case. The bee man gave him a recipe to run in with the ad. This recipe was of a very palatable honey concoction, and very few readers did not try this recipe. The storekeepers could not understand the sale increase of honey until one woman brought the clipped recipe with her.

These were run every week, and every week more people bought the honey and again tried the recipe of last week. Many clipped them and saved them in one manner and another. The usual ad had carried only the announcement that this man was in this business, but the recipes woke the people up to the fact that honey was good for something.

L. B. L.



These likenesses show that both the Editor and his good wife have many useful years ahead.



"C. P." at twenty-four, just after his marriage.

Hail to the Chief

A Tribute to the Editor on Reaching His Seventy-fifth Birthday, by Members of His Staff.



Mrs. Dadant, just venturing alone with her husband.

THE editor is 75 years old. Those of us who know and work with him, and have to hustle to do as effective a day's work as he does, find it hard to realize the fact. April is the month of his birth. On the sixth day of this month in 1851, C. P. Dadant first saw the light of day in the little city of Langres, in France.

To live to seventy-five years in health and activity, to gain a fair measure of worldly success, to rear a large family of worthy children and to enjoy the friendship and esteem of a world-wide circle of friends is a privilege that comes to but few. To live for fifty years with the wife of his youth and to approach the twilight of life surrounded by his children and grandchildren deserves the felicitations of all his friends.

When, in November last, the editor and his good wife reached their golden wedding anniversary it was the wish of the Journal staff to bring the happy event to the attention of our readers, that they might join with us in wishing them many more years of life together. The

boss vetoed the plan, saying that it is unwise to bring his family affairs too much into the Journal. This time we propose to celebrate his seventy-fifth birthday with our readers without telling him anything about it.

Behind the success of most men is the inspiration of some woman, wife, mother, sister or daughter. How much of Mr. Dadant's personal success is due to his gentle, home-loving wife it is impossible to tell. He is always the first to give her much of the credit. Mrs. Dadant is a rare soul who lives for her family and friends. She suffers with everyone who suffers and rejoices with them in their good fortune. The editor is known to our readers through his writings, but Mrs. Dadant, in the seclusion of her home, is known only to those of us who are fortunate enough to make her personal acquaintance. It gives us much pleasure to introduce her to our readers along with her husband.

Coming to Hamilton at the age of twelve years, where the family settled on a brush farm and engaged in beekeeping and fruit growing, Mr. Dadant has spent most of his life in intimate contact with the bee-

keeping industry. He has spent many a day in extracting honey and many a night moving bees over the rough roads between his various apiaries. He has learned the ins and outs of the business by performing the actual labor of honey production to furnish the means of livelihood for his family. Beginning when beekeeping was a crude business and before the modern labor-saving implements had been invented, he has had a part in the great development which has transformed beekeeping from a mere hobby to a commercial enterprise. He has known most of the men who have made important contributions to the advance of the industry. Those of us who use power extractors, steam knives, full sheets of foundation, factory-made hives and automobiles have little idea of beekeeping with box hives, caps for surplus, and horses for transportation.

Here at the office we treasure the daily chats which connect for us the old days with the new. How great the privilege to hear him tell of

Langstroth and others of the old days, and to live again with him the experiences when beekeeping as a business was very crude, we will only fully appreciate when he no longer comes breezing in to enquire what may be new. It is said that as long as a man looks forward to the future and has the spirit of youth he cannot grow old. It is only when he begins to live in the past that age makes itself felt. Our chief takes the keenest interest in all that is taking place in the world of today. He delights in progress and enjoys measuring things as they are by things as they were, to see how far we have moved forward in the time since he became a beekeeper. The spirit of the man is evident in his daily salutation: "What's the news?"

It required a good deal of pressure on the part of interested friends, as well as members of the staff, to induce him to write his series of personal recollections which have been appearing in the Journal for some months past. Little did he seem to realize how much there was which he could tell of the past which would be new and full of interest to those of us who are younger. The many letters from our readers, who tell of the pleasure they find in these memories, are the best proof that we were right in urging him to do it.

When, after nearly fifty years of active work in the apiary and a long service in the making of foundation, he wished to retire from business, he could not be idle. His business affairs he left in the hands of his three sons, and since that time has devoted himself to translations of beekeeping literature from the English to his native French, and likewise the best of the good things from the French to the English. Since 1912, when he bought this Journal, he has closely directed its publication, leaving the details to his staff. It was no idle jest in the first paragraph, which stated that it makes us hustle to do as effective a day's work as he is still able to do at 75.

It is the purpose of this brief sketch to pay a tribute by the working force of this publication to our senior editor, who is also our neighbor and friend. To know him intimately is to appreciate qualities which are unknown to those who know him only by reputation. Some of us knew him in that way for many years before we came into intimate daily contact through working with him in the publication of this Journal. Since this must of necessity appear in his own publication, even without his knowledge, we do not feel free to say all that we would like to say. But we do

want him to know that those who work with him and for him appreciate his high ideals and his kindly consideration for all with whom he is associated. We crave the privi-

lege of bestowing a few flowers upon a worthy friend during his lifetime rather than waiting until he has passed beyond our reach.

Again, "Hail to the Chief."

The Crane Family



Above picture is of Philip E. Crane, son and partner of J. E. Crane, at the right. The granddaughter shows the years between the two pictures.

Mr. J. E. Crane, of Middlebury, Vermont, is one of the oldest contributors to the American Bee Journal. He is most noted for his production of fine comb honey. Our editor called at his home in 1916 and, in the February, 1917, number of the American Bee Journal, published a picture of his son and partner, P. E. Crane, and granddaughter, Mary, who was then a very little girl. We

now have the pleasure of giving our readers the photos of both that little girl, grown up into a woman, and grandfather Crane, who is now 85, or ten years older than our editor. A former picture of Mr. Crane was published in February, 1917. Our readers will join us in wishing Mr. Crane many more happy years, together with many more occasions of contributing to our columns, in his simple and thorough manner.

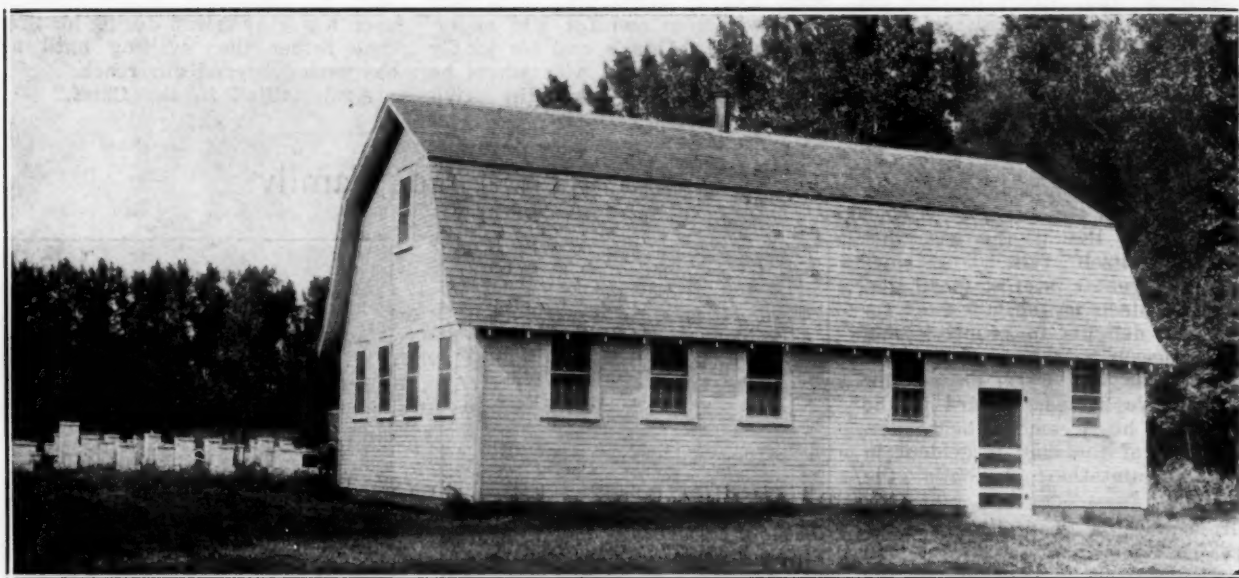
Good Market in England for American Honey

There is a large market for honey in the British Isles, and because of climatic conditions only a comparatively small quantity is furnished by domestic beekeepers. A growing demand for California white sage honey is noted, and, to a lesser degree, orange blossom honey. The following statement issued by the British Ministry of Agriculture should be of interest to all American exporters:

"Comb honey should be translucent, showing the clear, bright color of the contained honey; the combs should be fully worked out to the sides and bottom of the section, and

scrupulously clean. The cappings should be thin and of even surface. The finest liquid extracted honey is bright and clear, of a light amber color, and delicate in flavor and aroma. Extracted honey when granulated should be of fine, even grain, creamy white in color, and of good flavor. There are many grades of medium and dark colored honeys which fail to reach this standard but are of excellent quality in flavor and aroma, and in some localities these dark honeys will sell more readily than the lighter samples. Color is only a matter of fancy and does not affect the eating qualities."

This has been quoted in full, since it represents the general British taste.



Honey house, Smith Brothers' apiary, Ameniam, North Dakota.

Organized Control of the Honeyflow

By R. L. Webster.

ONE of the most severe handicaps of a large number of beekeepers is that they have so little control of the disposal of the honey plants on which they must depend for a profitable crop. This led to the stories of older beekeepers who carried sweet clover seed around in their pockets and seeded this in waste places and along roadsides. More recently others have provided seed to farmers without charge, in order to induce sufficient planting within bee flight of their apiaries.

In the development of beekeeping in North Dakota one outstanding yard, that of F. H. Smith & Sons at Ameniam, is an excellent illustration of what may be accomplished when practically all the factors that concern a continual honeyflow are under one control.

The Smith holdings, which are managed by two brothers, F. Paul Smith and R. G. Smith, amount to 3500 acres in North Dakota, and also some 1500 acres in South Dakota. Of that amount, however, only some 1600 acres are actually operated by the two brothers themselves. Because of the considerable acreage of sweet clover in the Ameniam district, where the home place is located, beekeeping has become an important phase of farming on a large scale.

Ameniam is located in Cass county, some thirty miles west and north of Fargo. It was at Ameniam that Willis L. Crites, manager of the Chaffee-Crites Bee Farms, located several years ago, attracted by the immense possibility of operating bees in a

sweet clover country. The development of beekeeping in a large way in this section is due to the activity and enthusiasm of Mr. Crites.

The Smith Brothers' apiary is composed of some 200 colonies, purchased from Sam Lawrence, a former Montana beekeeper, who was located at Ameniam at that time. These hives are all double, contain fourteen Hoffman frames, each side with a queen. Regular full-depth, ten-frame supers are used above the large hive body, separated from that by a queen excluder.

During 1925, on the Smith Brothers' farm, there were 400 acres of biennial sweet clover, of which 80 acres was in Grundy county, while 320 acres was in Mammoth White. This in itself would more than insure a good crop of honey for the 200 colonies at present in the yard.

The early blossoming Grundy county sweet clover provides nectar first, since it comes into bloom around June 20. This is followed quickly by the Mammoth White variety. The entire acreage of all this sweet clover is cut for seed, and the time of cutting the various fields is so planned that at no time during the season are the bees without pasture.

In addition, a field of the annual Hubam has been seeded, which will provide late pasture for the apiary when the blossoms on the biennial sweet clover are waning. The whole arrangement of acreage allows practically a continuous honeyflow from the time the Grundy county variety comes into blossom in June until

frost kills the Hubam in the fall. The project at the Smith Brothers' farm represents what may be accomplished when owners of large holdings of land take up honey production in real earnest and correlate this activity with their other extensive farm operations.

But sweet clover is by no means the only honey plant available at the Smith farm at Ameniam, since it is reinforced by 210 acres of alfalfa. Of that amount 60 acres are utilized as pasture for stock, and consequently would give some little opportunity for bees during the season. The other 150 acres are cut for hay, and the crop of blossoms late in the season would provide nectar in August, since alfalfa yields honey in some abundance in this locality.

A new bee cellar, 14 by 48 feet, was constructed during 1924, at a cost of \$225. This is of mounded earth, 5½ feet deep and 6½ feet in the clear. That North Dakota winters are by no means too severe for wintering bees is indicated by the fact that out of 180 colonies taken into the cellar in the fall last year, 178 came out alive in spring.

The honey house, constructed this year at a cost of approximately \$1300, is a 24 by 40 structure, a story and a half, to provide ample space above for storage of combs and supers. The honey house is provided with a concrete floor and a steam boiler has also been installed for use during extracting.

The Smith Brothers' apiary is in charge of Dave Kain, who gained his beekeeping experience in Colo-

rado and was attracted to North Dakota by the success of other beekeepers in that region. Dave is a brother of Bob Kain, who is in responsible charge of the Chaffee-Crites Bee Farms at Amenia, now running about 900 colonies of bees in that vicinity.

No attempt has been made to establish outapiaries at the Smith farm at the present time. The large acreage of sweet clover within easy bee flight, and the comparative ease with which the whole equipment may be handled in a central location, makes this unnecessary, if not actually undesirable, at the present time. Moreover, with a man on the ground practically all the time, few things can happen, in the yard, of which he is not soon cognizant.

The man in charge, Dave Kain, is employed at a stated salary, and will receive in addition a bonus according to the value of the crop harvested during the season.

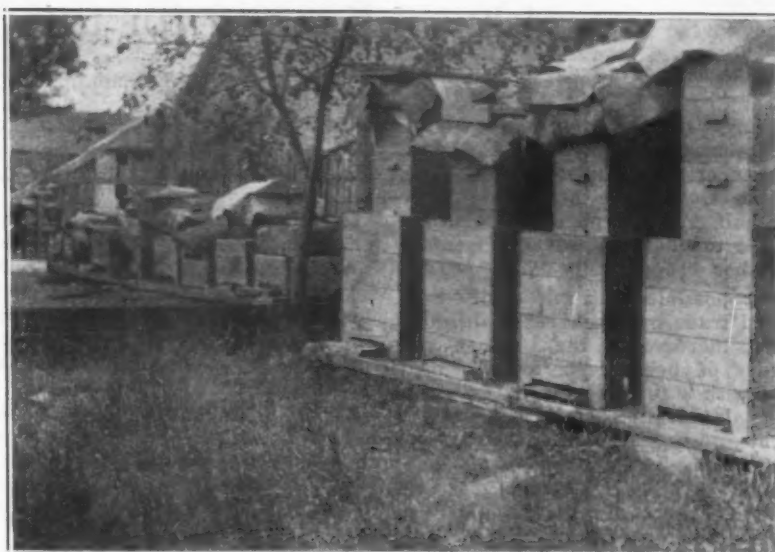
During July last year the North Dakota Farm Managers' Association spent a part of a day at the Smith farm, where they studied the apiary and equipment first hand. At that time other managers of large holdings in North Dakota expressed themselves as being definitely interested in the development of honey production, especially in its relation to other farm activities, on the land under their control. Without question, considerable development along such lines is in store in the progress of honey production in North Dakota.

An Australian Crop

While our bees are in winter quarters in the United States, the bees of the Southern Hemisphere have their summer. Here are three photos of the apiaries of G. Armour, of Camden, N. S. W. Mr. Armour harvested 12 tons of extracted honey and two tons of comb honey from 80 colonies, or 350 pounds per colony, during the winter of 1924-25, and he "don't think that any beekeeper should keep bees without the American Bee Journal."

Do Honey Exhibits Pay?

Mr. C. L. Porrett, Port Huron, reports that as a result of placing a demonstration hive and honey exhibit in the window of one of the leading grocery stores during honey week, he has sold from this store 325 5-lb. pails, 22 2½-pound cans, and 2 cases of 12-oz. jars. Previous to the placing of the exhibit he was able to sell very little honey at this store.—Michigan Beekeepers' Letter, January, 1926.



The club boys' bees are in the foreground, the father's at the back. Who beats?

Bee Club Work in Washington

By B. A. Slocum.

JUNIOR Bee Club work has been conducted in the State of Washington for the past five years. I fear that boys and girls are an agency lost sight of by beekeepers, inspectors and possibly some extension workers as a means of developing the beekeeping industry of the community, county and state.

The State of Washington has eleven bee clubs with a membership of sixty-three. All of these clubs are of assistance in carrying out the adult program in their counties. Three members in one of our clubs have been in club work for five years. This past year they made a saving of \$745.35. In addition to their own work and going to school, they have been of material assistance in developing the beekeeping industry of their county. They have helped their neighbors transfer bees from box hives to movable frame hives, introduce pure-bred queens, replace scrubs, and treat diseases. They have had bee and honey exhibits at their county fair and have given live bee demonstrations and talks upon bees and their healthful product, honey, at the fair. It was through their and adult beekeepers' assistance that it was possible to reduce disease in their county from 37 per cent to 1.5 per cent in the past four years.

In addition to the actual work the bee club members do with their neighbors, assisting in the adult program, their own yards are a demonstration for everyone to see. This is shown by the above picture. Three years ago the writer, in the capacity of State Bee Inspector, visited the

father of the boys whose yard is shown above. His bees were in box hives and he said "Beekeeping doesn't pay in this locality. This isn't a bee country." He transferred his bees to comply with the law. The following year his two sons joined the Lynden Bee Club. By comparing the hives above, you can see how the father is gradually assimilating the practices of the boys. The boys are still using better methods of management and their colonies are headed by pure-bred Italians, while the father still has scrubs. The father has ordered pure-bred queens and plans to requeen next spring.

Classified Advertising

The American Bee Journal has long wished to see some action on the part of the shippers of bees and queens which would insure safety to their customers and inspire confidence on the part of those who must do business at long range. We have felt that such action should originate with the shippers. The Louisiana Association has taken a step in that direction in their recent action providing for certified advertising. The officers of the organization agrees to handle the ads and to stand behind them. The Association also agrees to attempt to adjust any differences that cannot be worked out between buyer and seller. The State Entomologist is very thorough in his inspection of apiaries where bees or queens are reared for sale, and there is little danger of disease leaving the state under his certificate of inspection.

Queen-Rearing for the Amateur

By Allen Latham.

A FEW years ago our bee periodicals carried only half a dozen columns or so of advertisements of queenbees. Today there are more than half a dozen pages twice over devoted to queenbee advertisements. What has brought this about?

Is it possible that this vastly increased trade in queenbees is due to a vast increase in the number of colonies of bees kept today compared with a few years ago? I think it very doubtful. True it is that the Northwestern states and Texas, as well as some other portions of our country, have seen a great growth in the beekeeping industry. Many parts of the country, on the other hand, have fewer bees today than there were a few years back. My own state, Connecticut, has seen considerable change in the beekeeping industry, but I doubt if there are as many colonies in this part of the United States today as there were one or two decades ago.

No, I think this vast increase in queenbee rearing and trading is due to another cause. It is because a larger percentage of colonies each year are requeened. It was not long ago that the majority of beekeepers either allowed their colonies to requeen themselves or else requeened only when queens began to fail. Annual requeening has come into vogue only of late years. Even the small beekeeper, the one with only four or five colonies, feels today the need to replace his queens each season. Hence the fact that from one-tenth to one-seventh of the pages of our bee periodicals are devoted to queenbee advertisements.

As one reckons the need of requeening he begins to reckon the cost, and many beekeepers decide to rear their own queens, believing it to be best in the end. Many there are who will never do this, either lacking the inclination or not caring about the expense side of the question. Probably one of the chief reasons why so many do not care to rear their own queens is because of the idea that to do this one must have an expensive and complete outfit of the latest style.

It is very true that one who is to rear queens for the trade should not make the attempt without ample appliances of a most reliable nature. He must, in fact, be more than prepared if he hopes to acquire and keep a goodly patronage. For the small beekeeper to rear a few queens for his own use the problem becomes very different. One can, with practically no outfit, rear a few excellent queens at very slight ex-

pense. This article is written for those few small beekeepers who would like to rear a few queens occasionally.

I shall not name one thing in this article that must be bought in order to carry out this simple queen-rearing attempt, unless it might be some sugar for feeding purposes. All that will be needed can be found in any workshop or easily made with the simplest tools.

Although the simple system I plan to describe may be carried out during almost any month of the active season, it is most easily achieved during the swarming period or periods.

The amateur will wait until he finds a colony starting queen cells before he begins his queen-rearing. He will proceed at once, however, when he finds queen cells started and some royal jelly in some of the cells. His first act will be to dequeen the colony. His next act will be to remove all eggs and larvæ in the queen cells except one with a small grub in it. He will then shut up the hive for one day, giving a pail of thin feed, unless honey is coming in very freely.

This feeding is very important, even in this simple plan of queen-rearing. Bees often swarm when there is almost a dearth of honey. In fact, bees are more likely to prepare to swarm when honey is coming in a dribble than when it is pouring into the hive. A simple feeder is a quart or two-quart pail with a friction top which fits tight. Punch holes not over one thirty-second of an inch in this cover. These holes can be punched by using a wire nail of 17 or 18 gauge, but to sharpen the handle end of an old file makes the task easier. The feed may be made either of syrup or honey. Off-grade honey is fine for the purpose, unless you have reason to fear disease. In localities where American foulbrood prevails it is wiser to feed syrup. Make this syrup of granulated sugar dissolved in hot water, using about three parts of water to one of sugar. Experience has demonstrated that thin feed is much better than heavy feed for queen cell production. Thin feed tends to the production of chyle, while heavy feed tends to the production of wax. Thin, watery syrup is more like natural nectar than is heavy syrup. Place the pail of feed bottom-up over the top bars, or, better, over the escape hole of the inner cover. It is well to remove any supers and thus crowd the bees into the brood chamber.

Now, in the shop, prepare the simple requirements. The necessary tools are made from pieces of broken section. If you do not produce section honey and thus have no broken sections, then use either basswood or spruce of good grain and strength. A paddle is made by whittling a piece down to a thin edge and three-sixteenths inch wide at one end. This little tool is used to remove royal jelly from queen cells and to mix the same uniformly. Another tool is made by whittling a piece down to a cylinder at one end with a diameter of one-sixteenth inch. This little tool is to dip into royal jelly and transfer a drop to the queen cups to be grafted. A third simple tool is to whittle down a piece to a mere sliver. This tool is used for picking up larvæ and placing same in the prepared cups. This sliver is about one-thirty-second inch wide at end and thin as possible. The very tip is so thin as to be pliant when soaked in the mouth.

The supply houses sell special tools of metal, and some queen breeders prefer tools made of goose quills, but when the little wooden tools are properly made the others are far outclassed. I would not use the others if they were furnished me free.

We are now ready for the next procedure in our queen-rearing, provided we have before this picked the prospective mother of our queens-to-be. Almost every beekeeper, big or little, has a pet colony. The mother of that colony will, of course, be selected as the queen whose larvæ will be grafted into the prepared cups.

Twice have I spoken of prepared cups for grafting, and by this time many are wondering when they are to be prepared, and how. Some of my readers, better at puzzles than others, may have foreseen by this time that these cups are being prepared while we are getting the tools ready. We shall give not less than twenty-four hours for them to be amply prepared.

Therefore it is the second day, the day following the removal of the queen, that we open up the colony which is to build our cells. We find that the cup left with the small larva is much enlarged and that the larva is now resting on a large quantity of fresh jelly. We cut this cell out and remove the larva with the proper tool. With the paddle we now stir the jelly. If it is of a thin cream character it is

all right as it is, but usually it is too thick. If one's mouth is clean he can let a drop of saliva dribble into the cell; if not, then put half a drop of water in. Stir again and if necessary add more liquid until the royal jelly will almost run out of the cell when it is turned up.

Now select from the pet colony a comb with very young larvæ in it. Take this comb to a sheltered spot where you will carry the queen cell with the jelly, your grafting tool and jelly placing tool. Then going to the dequeened colony, remove a comb. You will probably find on the edge of this comb three or four beautifully prepared cups with well polished interior. Carry this comb, first removing the bees with a brush, to your selected spot. With round tool dip into cell of jelly and touch end to the inner bottom of a cup. A small drop of jelly will adhere to the cup. Do this to each cup on the comb. Then, picking up comb of larvæ, run a knife edge along a row of cells containing young larvæ. With the knife bend over one side-wall of the row of cells, thus exposing the larvæ to clear view. Now with the sliver of wood gently run the end under a larva of proper age and float the same off upon the drop of jelly in one of the cups. Do same to all the cups and replace comb in hive. Work quickly, so that royal jelly will not have time to dry.

This operation is very simple, and if you have everything ready in advance the transfer of the larvæ should take only one or two minutes at most per comb. You will find from twelve to fifteen cups, sometimes many more. In case there are not enough, you can cut some out of other colonies preparing to swarm and fasten them to the edge of a comb.

In selecting the larvæ avoid those so small that the eye can with difficulty discern them, also reject those so large that they reach nearly across the bottom of the cell. Select, if possible, larvæ all the same size or age. Larvæ of a length of about 3-32 of an inch are good for a trial.

It is useless now to tell you to keep that colony closed from now on, for you must of course see how your work has gone. I urge you, however, to keep the hive open only for a few seconds. Just glance on one or two combs, then close at once. Keep the feed to them, however, giving two quarts or so each evening for four days anyway.

You may not believe it, but you are going to get some wonderful queen cells, and now you must be getting ready to care for them. The next articles will tell you how to do this.

Connecticut.

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But our catalogue is
Entirely new and I feel
Sure you will like
It. Yes, there is more truth
Than poetry in this.

OUR 1926 CATALOGUE

is the largest and best we have ever issued. It is a treatise on bees for the beginner and may be of help to the beekeeper of experience. This year our strain is better than ever before. This was brought about by crossing queens from our Queen Alice with drones from our regular yellow stock. Another year's experience has enabled us to slightly improve our methods of queen-rearing, so that with our 1218 Jumbo nuclei we expect to turn out queens of even higher quality than before, and to fill orders promptly. Every queen guaranteed to satisfy. We have a number of fine breeders for sale this year. We will begin shipping untested queens May 1.

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THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

USING SECOND STORY

1. In using an extra super on hive body to give the queen more room in the spring, how can the early spring honey be kept from being stored in this super? When I raise this story after putting the queen down, the clover flow is nearly ready and the bees store white honey around this dark honey, so at extracting time this cannot be kept separate. I do not use these supers for food chamber, as I have shallow supers left from comb honey equipment that I use. Would these give enough room in the spring?

2. Will combs filled with pollen after being immersed in a water formalin solution affect or harm the bees or brood?

3. The honeyflow from clover starts here about June 15. Why could not a colony be divided about April 1 to 15 and the queenless portion given a young laying queen and then build up in time for the honeyflow, as package bees do? I have never tried this and do not know if it is possible, but it seems as if it could be done. Of course, one would feed the colony to be divided so as to get plenty of brood in time for the division.

IOWA.

Answers.—1. If you put your extra breeding body on early enough, there will be but little honey gathered, and that honey will be used by the colony to rear more brood. If you wait till the crop is on, then you are rearing your extra bees "on the crop, and not for the crop." Of course, the time of putting on the extra breeding body is a point which varies according to the locality, the season, and the condition of the bees and of the prospective crop, and even an experienced beekeeper will sometimes miss it. As you do not say what size of hive you use, I am unable to say whether you may have enough room in a story or in two. But in order not to get the fall honey of the previous season mixed with the fresh clover honey, it is advisable to have the bees use it up, or extract it before the honey comes in.

2. I have never tried immersing combs containing pollen in a formalin solution, but unless there is too much of it the bees would surely remove it and carry it out before it becomes dry again. Otherwise it might be better to melt up those combs.

3. A young queen may be able to build up a colony in the time you mention, but it does not have the same chance as a queen surrounded with two or three pounds of bees. Such a queen can lay at once and her brood is cared for. But the queen of a division made in April would have very few bees to take care of her brood. However, there are extraordinary cases where this might happen. But do not depend upon it. You would probably find that it does not all rest upon feeding, for if there are not enough bees to keep the brood warm and take care of it, you will have your trouble for nothing. We aim to have our colonies as strong and as warm as possible, so the queen may breed readily. Dividing early is precarious.

CAUSE OF WINTER LOSS

1. I had an eight-frame hive of bees which worked good all summer and fall. I looked into the hive in October and they had plenty of honey stored for winter use and seemed to be in first-class condition. I did not look at them again until about the

middle of January as the weather had been damp. When I looked at them the wood cover of the hive was moldy inside, the uncapped honey seemed to be a little moldy, and the bees were all dead. I also noticed a couple of frames were moist with water and a little water in one corner of the hive. From all indications the wood lid had leaked. There was no sign of any brood in the cells. I would like to know your opinion as to what killed the bees, whether it was the moldy honey, or could it have been foulbrood? I do not know much about foulbrood, but I do not think it was that. Would this honey be good for any purpose? I have no extractor. Would the capped honey do to feed to the other bees?

2. Last summer I put a swarm into one of your ten-frame hives and by giving them foundation they filled the hive and one super in one month's time. But after they filled the second super, on inspecting it I found that the queen had laid eggs there, a small space in each frame. What could have been the cause of this? Crowded?

ILLINOIS.

Answers.—1. This is another evidence of the necessity of plenty of ventilation in the hives. Your colony probably got weak and, as the bees died, the moisture invaded the hive. It was a fault to have a leaky cover, but if they had had plenty of bees and plenty of ventilation, they would have overcome the dampness. Foulbrood could have nothing to do with it. If there was foulbrood you could easily detect it.

2. The queen went up into the super, probably, because the bees stayed mainly in it. There was probably more room in the hive than needed and the upper story was easier to keep warm. In the latter part of the season you must not give them so many empty supers. Make sure that they are getting short of room below, before giving them room above. Bees have a tendency to fill the empty room above at the end of the season, and we always aim to crowd them a little, to make sure that they will fill the brood chamber with plenty for winter.

GIVING FOUNDATION EARLY

1. I want to give my bees about 500 full-depth Hoffman frames with Dadant wired foundation, and I want the bees to draw this into full combs during the month of April. Could I induce them to do this by heavy feeding of sugar syrup? I realize this will be expensive, but will not mind the expense if they will draw the combs?

2. About how much to the colony?

3. How fast should I give it to them?

4. Will it be best to feed over cluster? I have used the Boardman feeder, but will not use another entrance feeder.

5. In using the honey pail with Lewis Bonney feeder, should it fit flat on top bars over cluster?

6. Will there be no danger of drowning the bees?

ARKANSAS.

Answers.—1. You do not say how many colonies you have, to draw those 500 combs. It is a large number. But there is no doubt it may be done by feeding, if the colonies are strong enough.

2. Give as much syrup as the bees can take care of. But stop occasionally if they fill the combs too full.

3. If you give it very fast, they will not build as much comb as if you give it regularly but slowly. The quantity must

depend upon the strength of the colony, enough to keep them building, not enough to fill all the combs.

4. I would certainly feed over the cluster, as there is less danger of exciting robbing. The so-called Boardman feeder is very good; so is any jar or inverted pepper-box, but it must be used over the cluster.

5. No, it is better to have a little space between the feeder and the frames, so the bees may go about under it. It is very important to have everything snug around the feeder, so there be no deperdition of heat.

6. There will be no danger of drowning the bees, if the feeder is atmospheric in its action; that is, if the feed is retained in it by atmospheric pressure so that it will not flow any faster than the bees take it. We have often used a common tin can, with a cloth tied over the mouth to fit. It has the advantage that the bees will make holes in the cloth, when it is left on several days, and clean the inside of the feeder, after taking all that comes.

EARLY DIVISIONS

1. They say, divide your weak colonies in the spring. How small will one be when it is too small to divide?

2. We wintered a lot of nuclei, some pretty small, I think as many as four in one hive with a division board, or boards. If they come through, we want to turn those into honey-producing colonies, naturally enough. Which would help us to do that the best, to divide those giving each a queen, or to leave the nuclei undivided and buy packages without queens to reinforce them? Does the answer depend on conditions? What?

3. We had about eighty pounds of honey from the cappings. We got it out by an improvised strainer. It tastes of the wax. Can anything be done with the honey? Otherwise it is high quality.

4. I have been immensely curious to find out the reason for the following, and have been long hoping I'd discover some satisfactory explanation in reading or from some beekeeper, but have not as yet.

We found the queen from a hive out on the alighting board with bees around her, picked her up and put her back in the hive. Pausing by the hive a few minutes later, she was out again, the bees dragging her out. We took her into the house and put her into a glass till there would be time to do something. Then, we put her back in the hive in a push-in cage. A few days later found her not released, and dead. Why did they put her out?

5. Is this a correction or not? I read an article, with a lot of interest, on bees in mythology in some issue of last year. It said sugar was mentioned for the first time in the sixth century A. D.

Well, there is an expression, "Carrying coals to Newcastle." This idea of giving where there is abundance already seems to have struck peoples in different times as worth some epigrammatic form of words. The Romans used to say, "Carrying logs into the woods." I came across a sentence once which I believe comes from the Ebers Papyri, in which the ancient Egyptians hit it off, perhaps, the best of all. The way they expressed it was: like "spreading sugar on honey." That would be somewhere before 1350, according to Ebers' chronology. I mean B. C., of course. May we take that as a mention of sugar at that early date, and assume it was known then? If this is not right when and where, do you think, sugar was mentioned first?

ONTARIO.

Answers.—1. If anyone says to divide your weak colonies, he is putting it wrong. If you wish to harvest much honey, you must keep your strongest colonies whole, but you must not divide the weak colonies; divide the medium ones. They must have plenty of brood and plenty of bees, but they may be such colonies as rear bees on the crop, too late to be field bees for the crop.

2. Yes, the answer depends on conditions. You can do nothing with a two-comb nu-

cleus, except help it to become a strong colony. Bees by the pound will help, of course. Better buy your bees with queens and make new colonies of them. Without queens they do not transport so safely. If you buy queens with them, you have real colonies very soon.

3. The taste of wax is an impediment, of course, but the honey is just as healthy. Some people like it in that way.

4. That question is one of the mysteries that we are not any better able to answer than you are. Probably there was some fact which you did not notice which would explain it.

5. The Century Dictionary states that sugar was "only vaguely known to the Greeks and Romans." The Dictionnaire Larousse says it was not introduced to Europe until the XIIIth Century. But quite probably there was more or less sugar found in the evaporation of the juices of sap, cane, etc. Evidently, however, the manufacture of sugar, for sale from cane, maple sap, and later from beets, was not begun till the time above mentioned. Honey was the principal sweet till then. It would perhaps be interesting to hunt up the first mention of solid sugar.

MAKING INCREASE

1. I have a few hives of bees which I want to use altogether for increase. Would you explain to me in detail a good system for making this increase? I have some knowledge of bees but I know that a good bee man could give me quite valuable information along this line. I am in an alfalfa district. We have also a few wild flowers and a little fruit blossom, commencing about April 1; and the alfalfa begins to bloom about May 15 or 20. From this on we have a practically continuous honeyflow until probably September 15.

2. I am figuring on requeening this bunch as early as conditions will permit, and am thinking about getting Carniolans. What would you advise? OREGON.

Answers.—1. It is impossible to explain, in detail, as you request, a good system for making increase. It would take a number of pages. If you buy your queens, it will be easier and more speedy to make increase than if you rear them. But the important thing is to have plenty of bees, plenty of brood, plenty of food, in every case, even when the colonies are made small at first. The increase of strength comes when the queen lays and the brood hatches. You must learn the habits of bees and take advantage of their peculiarities. I would recommend that you read either the "Hive and Honeybee" or "First Lessons," which you will find mentioned in our list of beekeeping books.

2. If you requeen your apiary, better do it with Italian bees, as you can more readily detect hybrids from the colonies of common bees in your vicinity than you could when you bred the Carniolans, which very much resemble black bees. The Italian bees have the same qualities as the Carniolans and swarm less.

From your description, you have a very good location for beekeeping, and if you study the matter of increase thoroughly, you can probably increase very fast.

SWARMS ABSCONDING

I am just starting in with a few stands of bees; last spring I had five stands. I was gone away from home when the first two swarms came out, and they left; and when the third swarm came out I put them in a standard hive and the next day they left. When the fourth swarm came out, I hived them and that afternoon they came out of the hive and hung on the back end of the hive. Well, I put them back in the

(Continued on page 187)

[*Money Saved*
[*Time Saved*]

Bee Supplies

Root's Goods at factory prices with WEBER'S service. Send us a list of your wants and we will quote you prices that will save you money.

C. H. W. Weber & Company
2163-65-67 Central Avenue
CINCINNATI, OHIO

Book Your Orders Now for Package Bees

Safe Arrival Guaranteed. *Free Circular*

Two-Pound Package Bees \$2.50 || Young Queen (1926) \$1.00

The Loveitt Honey Co. 602 N. 9th Ave. Phoenix, Arizona

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WRITE IF YOU NEED DESIGNS

ALBINOS

are the most beautiful bees you ever saw—virtually sheiks in the bee world. Their white fuzzy coats are very luxuriant. Albinos are extremely gentle, very prolific, and as honey gatherers they are unequalled.

It is a remarkable fact that these bees do not hybridize. They retain their individuality. In this region they are found in many small, neglected apiaries in their purity. Having been neighbors for many years of black bees and Italians, they prove to the world that they do have the ability to keep themselves pure and uncontaminated.

We have had these bees in our yards for over twenty-five years and have found them to be better bees in every respect than any Italians that we have ever tried. I have the original stock of the noted beekeeper who perfected them over forty years ago.

Try a few of these queens. I know you will be pleased with their appearance, the character of their workers and their wonderful capacity as honey producers.

I am prepared to furnish Albino queens at the following prices: Untested, \$2.50 each; dozen lots, \$2.00 each. Breeders (limited number), \$15.00 each.

Send for circular. Order early. Orders filled in rotation as received.

Sterling Nusbaum, Taneytown,

Carroll County,
Maryland

Pure Italian Bees and Queens

DURING the package season we have thousands of pounds of young bees hatching in our apiaries which are awaiting your orders. We ship only liberal weight packages of bees instead of just lean enough to *get by*; an order placed with us will not disappoint you.

Our cages used for shipping package bees are made of light and strong material so as to save our customers the unnecessary transportation charges often due to heavily constructed cages.

All orders entrusted with us will be handled in a business-like manner and filled on dates as agreed upon when orders were accepted.

We guarantee pure mating of all queens shipped, and safe arrival and satisfaction on bees and queens. Nothing short of a satisfied customer will satisfy us.

Health certificates with each shipment.

Package Bees and Nuclei

2-lb. packages with select untested queens, each, \$3.75; 10 to 25, \$3.50; 25 to 100, \$3.25.

3-lb packages with select untested queens, each, \$4.50; 10 to 25, \$4.25; 25 to 100, \$4.00.

Nuclei same price as packages.

Queens of Bright Three-banded Italian Stock

Select untested queens, each, \$1.00; 6, \$5.40; 12, \$10.00; 100, \$75.00.

Select tested queens, each, \$1.50; 6, \$8.00; 12, \$15.00. Breeders, \$5.00 and up.

LAKESHORE APIARIES, Covington, Louisiana



MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today. We pay highest cash prices and trade for beeswax.*

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri

J. W. ROUSE, Mexico, Mo. W. R. PERRY, CO., Omaha, Nebr. A. M. HUNT & SONS, Goldthwaite, Texas, Distributors

BEES \$1 A POUND IN LOTS OF 50
PACKAGES OR MORE

Select Queens
Quality

Italians, Carniolans
Satisfaction

OUR NORTHERN LOCATION makes it possible to save time and money.
Book your orders early and reserve shipping date. Circulars furnished upon request.

BANTA & WIRE, Redding, Calif.

(Continued from page 185)

hive and put a queen trap on, and the next day they came out two times. The queen could not get out, so the bees went back into the hive. I kept them shut with the trap three or four days and they stayed. Can you tell me the reason that none of the swarms wanted to stay?

When the fifth swarm came out I put them in a hive and put a queen trap right on and watched them for three days, and they seemed to be working, so I thought I would take the trap off. I did so and found the queen in the trap. I opened the trap and let her go back into the hive. I kept the trap on for five days longer and the queen would come out into the trap every afternoon, so I looked into the hive and found three frames of foundation nearly built out with comb, but no eggs; so that afternoon when the queen came out into the trap I opened the trap and let her go and now it is a strong stand. Can you tell me the reason of all of that?

OREGON.

Answer.—With no more information than you give me, I have to guess at the cause of all that swarming. My guess is that your bees had too much sunshine, not enough ventilation and not enough room. Probably you would have had less than half as many swarms if the hives had had plenty of ventilation and plenty of shade.

As to the reason why the last swarm did not have any eggs until you allowed the queen to fly, it is probably because she wanted to mate and would not begin to lay until after she mated.

I believe you should buy some treatise on beekeeping.

DISEASE FROM USED HIVES

I had ten hives of bees last spring which were purchased in three-pound packages with queen. I put them into new-made hives in which were placed new frames with new sheets of foundation. I am a novice in the bee game and very inexperienced. Three of the colonies developed foulbrood, or so it seemed to me; they dwindled and finally died out. The others remained apparently strong and in good condition throughout the year. I have the three empty hives outside; there isn't a particle of honey in any of them, so what I want to know is this:

1. Do any traces of foulbrood remain in the honey cells or hive if none of the frames contain honey?

2. If these hives remain outside all winter won't the freezing weather kill any foulbrood germs that might lurk in the hives?

WISCONSIN.

Answers.—1. If the colonies really had foulbrood, there are still some dead larvae in some of the cells. Besides, the germs of foulbrood being infinitely small, there would be many left that we could not see, perhaps even with a microscope. So it is better to melt down the combs, or treat them with the Hutzelman solution, and singe the hives with the flame of a plumber's torch.

2. No, the freezing does not affect the bacteria of the disease. In fact there are many bacteria of different diseases which are not affected by cold. Be sure and treat every one of them, if they contained disease.

EARLY NUCLEI

I have ordered twenty-five three-frame nuclei from southern Texas, to be shipped April 20. Is that too early for central Nebraska? Is there danger of the brood being chilled? I can take care of them all right after they arrive, if they are not chilled enroute. Fruit bloom is always open here by April 25.

NEBRASKA.

Answer.—No, it is not too early to get nuclei, unless they are badly packed. But the shippers are used to this work and I believe you can safely trust them. It is to their interest that you should receive the nuclei in good condition. They might even be shipped earlier in an early spring.

TENNESSEE-BRED QUEENS

Sixty-six Years with Bees and Fifty-four Years a Queen Breeder. Breed Three-Band Italians Only

	Nov. 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12
Untested.....	\$2 00	\$8 50	\$15 00	\$1 50	\$7 50	\$13 50	\$1 25	\$6 50	\$11 50
Select Untested.....	2 25	9 50	18 00	1 75	9 00	15 00	1 50	7 50	13 50
Tested.....	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested.....	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	21 00

Select tested, for breeding, \$7.50.

The very best queen, tested for breeding, \$15.00.

I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

Dittmer Foundation

We make a specialty of working your wax into foundation for you, and now is the best time to plan for next season. Write us for samples and prices. Our foundation is made of pure beeswax only. A full line of supplies. Write us for quantity prices.

GUS DITTMER COMPANY, Augusta, Wisconsin

Bright Three Band Italian Queens

Guaranteed in every way. Every queen a good queen. Introducing cage furnished with each queen. Let's introduce 'em right. Untested, in May and June: 1, \$1.25; 6, \$6.50; 12, \$13.00. After June: 1, \$1.00; 6, \$5.00; 12, \$10; 50 or more, 75 cents each.

Send for price list on bees, tested queens and cages.

J. F. DIEMER, Route 3 Liberty, Mo.

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of Sections from the whitest selected Wisconsin basswood

We also manufacture hives, supers, frames and shipping cases

Write for our free illustrated catalog

Marshfield Manufacturing Company
Marshfield, Wisconsin

Package Bees

No drones shipped, no disease, full weight and fed while in transit on the best of sugar syrup.

Not as cheap as advertised by some, but when service and quality are considered, with a guarantee that is a guarantee, then write

T. W. BURLESON

Waxahachie, Texas



CAUCASIANS CARNIOLANS

Beekeepers! Have you tried the hardy Caucasian bee? They are very prolific, very gentle, and the best of winterers. Little inclined to swarm, and as disease resisters and honey producers, they have no superiors. A WORLD'S RECORD of 616 one-pound sections of honey is the achievement of a colony of Gray Caucasians. We offer queens from the best imported and home-bred strains, bred for honey production. A trial will convince you!

CARNIOLANS are equally as thrifty, winter admirably and build up in the spring with great rapidity. We have the famous Kofler and Ambrosie direct imported strains, as well as our own selected stock. We have a circular ready, which gives you more information on the above. May we send you one?

W. A. HOLMBERG, Ceres, Calif.

Beekeepers' Supplies for 1926

Begin the season right. Order early and get good quality of hives, sections, three-ply foundation, etc. We carry A. I. Root Co.'s make of supplies in stock, such sizes and styles that are mostly used by the average beekeeper. Orders filled promptly. Beeswax wanted. Send for free catalog.

J. NEBEL & SON SUPPLY CO.,
High Hill, Montgomery Co., Mo.



We manufacture the finest CYPRESS HIVES and carry in stock a full line of supplies. Our prices are lower.

Write for 1926 catalog.

GULF COAST BEE CO.,
Houma, La.

Golden Queens and Banded Bees

Untested queens.....\$1.00 each
Tested queens.....\$1.50 each
Bees.....\$1.50 per lb.
Nucleus.....\$1.50 per frame
Bees inspected; free from disease.

J. W. SHERMAN
Valdosta, Ga.

MONTANA & NORTHWEST

Lewis "Beeware," Dadant's Wired Foundation, Woodman Smokers. Cans and Glass Honey Containers. Write for Catalog.

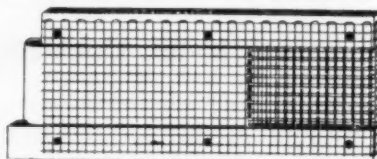
Service. Quality.

B. F. SMITH, JR.,
Fromberg, Mont.

A New Queen Introducing and Mailing Cage

It is contrary to our custom to give publicity in our columns to a patented article. But, those who know our good friend Diemer will readily realize that he is not trying to make money. He thinks he has a little invention that will do some good. That remains to be seen. Here is what he wrote us:

"Friend Dadant: You said truly that the simplicity of my new cage is its worst feature as a money maker. As I told you, I am not expecting to make money out of it, but only to simplify the introduction of queens. In requeening, we all know, the big loss of queens is caused by releasing them too soon. The simplicity of the cage allows simple instructions,



which make the operation of requeening easy to understand. No doubt the lack of understanding in this part of beekeeping causes the loss of many good queens, which holds back the elimination of the saucy blacks. After the honeyflow was over last fall, 290 queens were successfully introduced by myself and customers. Most of these were shipped in the introducing cage, and all arrived in good condition. The food container is slidable and movable. There is nothing to do but put the candy in container and the cage is ready for the queen. They are crated same as the Benton, but are quite springy when dropped on floor. It takes the same amount of candy as the Benton, but in a different form. In introducing, the cage is placed between the combs without spreading the frames. Bees that accompany the new queen can be removed without difficulty. A large screen surface allows bees and queen to become acquainted sooner."

J. F. Diemer.

Suggestions on Marketing

I have just been reading your January Crop and Market page. It is always good and gives a good, practical size-up of market conditions every month. As you say, "These are not very rosy suggestions." It does seem that the producers have a very demoralized way of marketing their product. Now it is not always the little side-liner that is to blame. Take here in Sacramento, right now, honey is advertised by a grocer for 44 cents a quart, and 5-lb. pail at 62 cents, and

as you know, there is a short crop in California. This honey carries the label of a large producer. I remember another instance of a large beekeeper who lives here selling comb honey by retail for less per section than he wanted for it by the case from the grocer.

I believe there is a lot of honey produced that could be very much improved in quality by just clean, careful beekeeping. My first step to improve markets would be to produce the very best quality of honey that can be produced in your location, offer the table grades for table use, and sell what is not desirable for table use to baking and manufacturing concerns. And educate the public on the merits of honey.

Tell them the real reason why it is the best sweet and why it is worthy a place in their regular diet. Do this and have a real good honey, and it is my opinion we need not worry over the market.

Of course, in addition to this, I know we have to have some system to handle the market and distribution.

Have you ever put honey up in Christmas packages, say a jar of extracted and some comb in attractive gift packages? I have not tried it, but seeing other things put up that way, I believe it could be done and would take.

J. E. Patton.

Success With Bees

A bishop, in a visit among the curates of his diocese, called upon a priest in charge of one of the poorest villages. This priest treated him to a sumptuous repast. The bishop, much astonished at what he called prodigality, reproved him for spending his money too freely.

"Do not worry," said the priest, "I am not spending the wages of my vicarage for this purpose. I retain my wages for the poor of my parish. But I have a convent of sisters who work for me and do not let me want for anything."

"A convent? I never heard of it. Please explain."

"After dinner I will show it to you and you will no longer find fault with me."

After the meal the priest escorted the bishop to a large enclosure, filled with hives of bees.

"My lord, here is the convent which supplies me with a good living and which has paid for the dinner you ate."

The surprise and pleasure of the bishop was great. After that, whenever some curate complained to him that his salary was too restricted, he would say to him, "Keep some bees, my friend, keep some bees."—"Bulletin des Alpes Maritimes.")

Geo. A. Hummer & Son

Apiaries are located on the main trunk lines, only 24 hours' run from Chicago. We have early honeyflow, giving us plenty of young bees from our 900 colonies, to ship out. We rear our own queens, bred from our best workers.

1926 Prices Italian Bees and Queens:

Queens—Untested, 1 to 10 at \$1.10 each; 11 to 25, \$1.00 each; 26 to 50, 90c each; 51 to 100, 80c each; above 100, 75c each.

Package Bees—2-lb. package with untested queen, \$3.50

each; 25 or more \$3.00 each; 3-lb. package with untested queen, \$4.50 each; 25 or more, \$4.00 each.

Nuclei—Two- and three-frame nuclei, \$4.50 and \$5.50 each; 25 or more, 50c less.

Terms—10 per cent to book; balance just prior to shipping.

We make all our supplies in our factory on the premises, hence we are able to give you the lowest prices. All shipments f. o. b. Macon, Miss.

GEO. A. HUMMER & SON, Prairie Point, Mississippi

You can have cash for your wax and old combs or cappings at the market price, or we allow a little more in exchange for supplies

Write for our terms and prices

"falcon" Supplies, Queens, Foundation

Booklet, "Simplified Beekeeping for Beginners" free

Write for catalog

W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"



CARNIOLANS

are very gentle, very prolific at all times, excellent winterers, build up rapidly during the changing weather of the spring months, and are most excellent workers; 1925 average over 150 pounds extracted per colony. Ask for my free paper, "MERITS OF THE CARNIOLAN BEE."

Queens ready latter part of next month; 20 years' experience with Carniolans; also Jan Strgar and M. Ambrosic imported strains. A few 2-lb. packages and 8-fr. colonies yet. Ask for prices.

ALBERT G. HANN,
Glen Gardner, New Jersey



MANUFACTURER BEE SUPPLIES
of quality. Western buyers can save by asking for quotations.

428-30 So. Hewitt St.,
LOS ANGELES, CALIF.

PORTER



**BEE
ESCAPE
SAVES
HONEY
TIME
MONEY**

For sale by all dealers.

If no dealer, write factory.

R. & E. C. PORTER, Mfrs.,
Lewistown, Ill., U. S. A.

(Mention Am. Bee Journal when writing).

BEE SWAX WANTED

We are paying highest cash prices. Tell us what you have and we will be glad to quote you prices f. o. b. your station or f. o. b. our station as desired. Write today.

Dadant & Sons, Hamilton, Illinois

PERSONAL QUEENS CAREFULLY RAISED

Are Always Better

Good untested, one grade, \$1.00 each
50 untested ----- \$45.00
100 untested ----- 85.00

NOW READY

D. W. HOWELL, Shellman, Ga.

STATEMENT OF OWNERSHIP

Statement of the Ownership, Management, Circulation, Etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Ill., for April, 1926:

STATE OF ILLINOIS, } ss.
County of Hancock.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Business Manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers, American Bee Journal, Hamilton, Ill.
Editor, C. P. Dadant, Hamilton, Ill.
Managing Editor, Frank C. Pellett, Hamilton, Ill.
Business Manager, M. G. Dadant, Hamilton, Ill.

2. That the owners are:
C. P. Dadant, Hamilton, Ill.
H. C. Dadant, Hamilton, Ill.
V. M. Dadant, Hamilton, Ill.
C. S. Dadant, Hamilton, Ill.
L. C. Dadant, Hamilton, Ill.
M. G. Dadant, Hamilton, Ill.
Leon Saugier, Hamilton, Ill.
Jos. Saugier, Hamilton, Ill.

That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: none.

(Signed) M. G. DADANT.
Business Manager American Bee Journal.
Sworn to and subscribed before me this 20th day of March, 1926.

BIRDIE ASH,
Notary Public.
My commission expires March 6, 1930.

STOP! THINK!

Did it ever occur to you that it took expensive advertising to sell poor queens? Good queens advertise themselves. We have them. Carniolans, \$1.25; Italians, Goldens, \$1.00, \$11.00 per dozen. Twenty-six years' experience. Safe delivery guaranteed.

The Russell hives are crowded and the Russell hives are jammed.

The bees that fill the supers are from the F. M. Russell strain.

THE F. M. RUSSELL CO.,
Roxbury, Ohio.

Meetings and Events

The North Carolina Meeting

The annual winter meeting of the North Carolina State Beekeepers' Association was held at North Carolina State College of Agriculture and Engineering in cooperation with the annual three-day Beekeeping Short Course on January 19, 20, 21.

The business meeting was held on Thursday morning, the 21st, at which the officers for 1926 were elected, as follows:

President, J. C. Crawford, Black Mountain, N. C.

Vice President, Eli Winesett, Whiteville, N. C.

Secretary-Treasurer, F. B. Meacham, State College Station, Raleigh, N. C.

The executive committee will consist of the above mentioned officers and Mr. C. W. Cary, Norfolk, Va., and Mr. C. L. Sams, Raleigh, N. C.

The association meeting and Beekeepers' Short Course was very well attended and over thirty students registered for the course. This course was conducted by Dr. Z. P. Metcalf, Mr. C. L. Sams and Mr. F. B. Meacham, of the Department of Zoology and Entomology, assisted by Mr. C. W. Cary, of the A. I. Root Company, Norfolk, Va., and Mr. Eli Winesett, a large honey producer from Whiteville, N. C. Several who lived some distance away from the place of the meeting were prevented from attending on account of recent snow and rain in their locality.

A very unique phase of the short course, and one that created quite a bit of favorable comment, was the apiary products judging contest, in which twenty-four of the students took an active part. The winners were: First, Mr. E. B. Britt, Garner, N. C.; second, Mr. S. M. Baggett, Pineville, N. C.; third, Mr. H. G. Lancaster, Vanceboro, N. C. The first prize was a silver loving cup, while the second and third winners received honorable mention.

Book on North Dakota

We have experienced considerable interest on the part of our readers in the beekeeping possibilities of the great Northwest, especially in view of its rapid development along the lines of diversification of farm production, including bees.

There has recently come to our desk, a book on North Dakota, put out by the Northern Pacific Railway, which should be of interest to such readers as are seriously considering any change in location.

The book is a fair representation of conditions as they exist in the counties served by the Northern Pacific Railroad in North Dakota, giving

at some length land prices, topography, annual rainfall, growing seasons, population, etc., with a rather extended description of each individual county served by the railroad.

Copies of this booklet may be had on request by writing directly to H. W. Byerly, General Immigration Agent, Northern Pacific Railroad, St. Paul, Minn.

Result of Extension Work in North Carolina

General interest in beekeeping in this state has increased rapidly during the last few years. The business is changing from a side line to a specialty. Many who had only a few colonies five or six years ago now have several hundred and are devoting their entire time to beekeeping. Some of them have increased to almost 1,000 colonies. Since Beekeeping Extension was started the advancement has been amazing and the beekeeping industry is now taking its proper place among other agricultural activities of the state.

C. L. Sams.

North Dakota Resolutions

At the annual meeting, the North Dakota Beekeepers' Association endorsed the work of Dr. R. L. Webster in the interests of the beekeepers of the state and pledged support to his newly appointed successor, J. A. Munro. The forming of a marketing association was favored and recommendations made for its development.

Pollination and the Honeybee

A new bulletin by Harry F. Dietz, entitled "Pollination and the Honeybee," has recently been issued by the Department of Conservation at Indianapolis, Ind.

The work of the bee in this important relation to plants is rather fully covered and those interested should write for copies to the above address.

Allen Recommended for Missouri Inspector

The Missouri State Beekeepers' Association has recommended the appointment of Arthur Allen, of Liberty, Missouri, for State Inspector of Apiaries.

Munro to North Dakota

Mr. J. A. Munro, who has been taking graduate work at Cornell this year in apiculture and entomology, has just been appointed to the North Dakota College of Agriculture and Agricultural Experiment Station,

Fargo, North Dakota, to take the place vacated by Dr. R. L. Webster, who has gone to the Washington State College of Agriculture, Pullman, Washington. Mr. Munro will assume his new duties April 1.

Saskatchewan Short Course

The first short course in beekeeping offered in Saskatchewan was held at the University of Saskatchewan, Saskatoon, under the auspices of the Extension Department, College of Agriculture, during the second week in February. Twenty-five registered for the course and a few irregular students increased the attendance to thirty. The course consisted of lectures on important topics relative to beekeeping and of practical work in the assembling of beekeeping equipment. Mr. R. M. Muckle, a graduate of Manitoba Agricultural College and an expert beekeeper in the Province of Manitoba, gave the major part of the course. Assistance was rendered by members of the University staff and by others. Mr. C. B. Gooderham, Dominion Apiarist, Ottawa, Canada, was present during part of the course and delivered lectures on subjects of vital interest to beekeepers, including the subject of bee diseases.

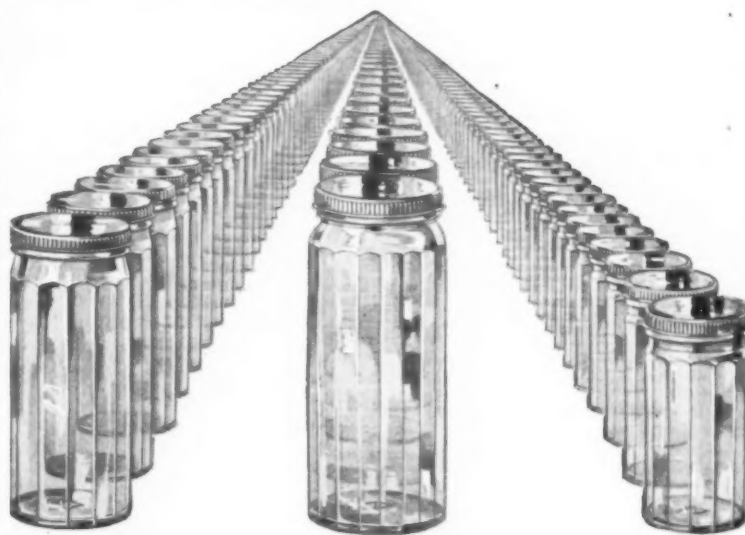
At one of the sessions the question of improved methods for the control of bee diseases was discussed. It was the consensus of opinion that shipping bees on the comb has done much to spread foulbrood and that steps should be taken without delay to prevent the dissemination of foulbrood in this way. Accordingly, those present passed unanimously a resolution requesting the minister of Agriculture for Canada to present legislation at the present session of Parliament to prohibit the inter-provincial shipment of bees on the comb and of second-hand beekeeping equipment, unless such shipments are accompanied by a permit issued by the Federal Department of Agriculture. A copy of the resolution was sent to each provincial apiarist and to the secretary of each beekeepers' association in the Dominion, with a request for their assistance and co-operation.

C. F. Patterson.

Broadcasting Bee Talks

It will be interesting to the readers of the American Bee Journal to know that Floyd J. Buck is broadcasting from radio KOWW, Walla Walla, Washington, every Thursday evening, 7 to 7:30, western time, on the subjects, "Bees" and "Honey."

Something of a novelty in radio has also been started by Mr. Buck, in a radio question box on bee culture. Beekeepers send in their questions to Bee Culture Department,



'Ten-Shun!
Put this profit making army to work

SHINING ranks of sparkling fluted honey jars, filled with your honey, make an attention getting display which will cause even casual shoppers to say, "That Honey looks mighty good—give me a jar."

"Diamond I" Honey Jars, which have been adopted by the American Honey Producers' League as standard, come packed in corrugated fibre cases which you can conveniently use for reshipping the packed honey to your trade. There are 2 dozen of the ½- or 1-lb. jars, or 1 dozen of the 2-lb. jars in each case.

Any of the houses listed below can supply you.

DISTRIBUTED BY Colorado Honey Producers' Association, Denver, Colorado; Dadant & Sons, Hamilton, Illinois; G. B. Lewis Company, Watertown, Wis.; Albany, New York, Texarkana, Ark., Sioux City, Iowa and Lynchburg, Virginia; Texas Honey Producers' Assn., San Antonio, Texas; A. G. Woodman Co., Grand Rapids, Michigan.

Illinois Glass Company

Established 1873

ALTON

ILLINOIS

Choice Light Three Banded Bees

1 2-pound pkg.	\$ 3.75	25 2-pound pkgs.	90.00
5 2-pound pkgs.	18.75	50 2-pound pkgs.	175.00

Add 75c for each three-pound package; add \$1.25 for four-pound packages; add \$2.60 for five-pound packages. Each package contains select untested queen. Booking 20 per cent with order, balance later. Delivery guaranteed. State health certificate furnished; full weight, good bees, and special attention to all orders. Write for large quantity. Shipping when you want them.

CLOVERLAND APIARY, Hamburg, Louisiana

Queen Talks

By

M. J. DEYELL, Apiarist

How to Get the Most Out of Queens

Beekeepers should provide good queens with the proper requirements that will enable them to do their best work.

These four requirements are:

(1) **AN AMPLE AMOUNT OF BEES** simply means enough bees with each queen when introduced to properly take care of the eggs the queen is capable of laying. It is folly to try to introduce a queen to a handful of old worn-out bees. It is better to buy a package of bees with queen to unite with each weak, queenless colony.

(2) **WARM HIVES** are necessary in practically any latitude during winter and early spring. Well insulated hives prevent the easy escape of colony heat and thus the queens can the more easily spread their brood rearing areas.

(3) **GOOD COMBS AND AMPLE COMB SPACE** help very materially in giving each queen full scope in egg laying. A comb with distorted, sagged cells may form a barrier in the brood nest that hampers a queen in laying to her maximum capacity.

(4) **AMPLE BEE FOOD** is a very essential requirement. Queens are frequently held back in their egg laying because of insufficient stores during a dearth of nectar to carry on brood rearing.

If interested in Root "QUALITY" Italian Queens and Package Bees, write for prices and free booklet on "Combless Package Bees."

The A. I. ROOT COMPANY

Medina, Ohio

BOLENS

Garden Tractor

Does seeding, Cultivating and Lawn Mowing with great saving of time and effort. All it needs is a guiding hand. Gasoline power does the work. Attachments for different jobs are instantly interchangeable. Many indispensable features, patented arched axle, tool control, power turn, etc. A boy or girl will run it with delight. Write GILSON MFG. CO., 524 Park St. Port Washington Wis.

BOOKING ORDERS

for high-grade three-banded Italian bees and queens; 2-lb. package with select untested queen, \$4.50; discount on quantity. Select untested, \$1.00, \$10.00 per dozen; select tested queen, \$1.50. Inspector's certificate with each.

J. ALLEN, Catherine, Alabama

PACKAGE BEES FOR 1926

Three-band Italians with select untested queens. The best that can be produced; no disease. Shipped on sugar syrup. Safe arrival guaranteed.

1 to 20 2-lb. packages, ----- \$3.50 each
1 to 20 3-lb. packages, ----- 4.50 each

Ask for prices on large lots.

Queens, 1, \$1.25; 6, \$6.50. 12, \$12.00; 50, \$45.00; 100, \$80.00.

W. H. MOSES, LANE CITY, TEXAS.

Practical Queen-Rearing

By Frank C. Pellett.

Queen-rearing Principles made clear. 105 pages, 40 illustrations.

Price \$1.00, postpaid.

American Bee Journal, Hamilton, Illinois

Radio KOWW, Walla Walla, Washington, and Mr. Buck answers them the following Thursday after receipt.

This station broadcasts at 256 meters and is reaching all parts of the United States.

Interstate Meeting at Sioux City

An important meeting is to be put on by the Woodbury County Association, supported by the Iowa Beekeepers' Association. This meeting is to be held June 22 and 23 at Sioux City with speakers of national prominence. Arrangements are made to carry on an educational program throughout the day of June 22, with a banquet that night. June 23 is to be a tour.

Woodbury county has many commercial beekeepers, and several will be visited. There will be a display of modern equipment at some of these yards. We are anxious that the beekeepers from Nebraska and Minnesota and South Dakota be with us at this meeting, and a special invitation is extended to any beekeepers in the United States.

F. B. Paddock,
Secretary, Iowa Ass'n.

Hubert H. Jones Becomes Cleveland Office Manager of Anchor Cap and Closure Corporation

Hubert H. Jones, for five years assistant manager of the Pittsburgh office of the Anchor Cap and Closure Corporation, Long Island City, N. Y., manufacturers of metal caps and machinery for vacuum and air-tight sealing of glass containers, and the Capstan Glass Company, Connellsville, Pa., manufacturers of commercial packers' glassware, has been advanced to the position of Cleveland office manager, effective March 1.

"Beekeeping News," New York State

R. B. Willson writes that he has numerous requests from those wishing to be put on the mailing list to receive the "Beekeeping News" of New York State, a regular monthly circular. There are not funds enough to send this paper to everyone, but Willson says he will be glad to send it to whoever will forward 36c in stamps for the cost of mailing for one year.

Bee School at Minden, Nebraska

V. W. Binderup has organized a bee class, now numbering 16 members, which meets on Tuesday of each week at the Minden school. Those interested may address Mr. Binderup as above.

The Bee as a Pollinizer

Another publication relating to the service rendered by the bee in the distribution of pollen has recently

appeared. It is by Prof. E. R. DeOng of the University of California. It is published together with Vansell's "Survey of Beekeeping in California" as Circular 297 of the Experiment Station at Berkeley.

Dunham to Ohio

Mr. W. E. Dunham has been appointed to teach apiculture at Ohio State University, beginning with the spring term of the present college year. Mr. Dunham has been taking graduate work at Cornell University. He is a graduate of the University of Vermont, class of 1925.

Our Cover Picture

In the cover oval for this month, the impression of great distance suggests California. The apiary is one belonging to Charles L. Hurd, Riverside, California, and is exceptionally beautiful, a typical mountain apiary for which the Golden State is so famous.

Steady Growth In Washington

The beekeeping industry is making rapid progress in Washington, with development about equal in the eastern and western parts of the state. At present 57.74 per cent of the bees are found on the coast. The enormous increase in this industry is shown by the fact that one county, Yakima, produced nearly as much honey in 1924 as the entire state did four years before.

Within the last four years the winter loss has been decreased from 19 to 10 per cent; bee diseases from 40.2 to 4 per cent, and box hives from 14.1 to 4 per cent. A total of 9580 purebred queens have been imported to replace scrub stock. The 10,000 beekeepers of the state are organized in fifteen associations and eleven boys and girls bee clubs, says B. A. Slocum, extension specialist in bees at the State College of Washington.

Production of honey has increased greatly. In 1920 the state produced 1,596,206 pounds, while in 1924 it produced nearly 16,000,000 pounds. We now produce 2 per cent of the crop in the United States, with the leading state producing only 10 per cent.

The increase in yield per colony has been marked when observed through a period of years. Our average yield has increased from 14.8 pounds in 1910 to 28 pounds in 1920 and on up to 90 pounds in 1924. The report is not yet complete for 1925. This increase has been made possible by the adoption of better methods of production through the cooperation of beekeepers with the State College of Washington.—Ext. News.

Report of the 1926 League Convention

The American Honey Producers' League closed its annual convention February 3, in Cincinnati, after electing E. S. Miller, Valparaiso, Indiana, President; Dr. L. C. Spencer, New Orleans, Louisiana, Vice-President; Frank Rauchfuss, Denver, Colorado; Dr. Ernest Kohn, Grover Hill, Ohio, and T. W. Burleson, Waxahachie, Texas, members of the Executive Committee. Mr. R. G. Richmond, of Fort Collins, Colorado, was chosen as Secretary-Treasurer to succeed himself. Appreciation was shown for the unselfish services of retiring President B. F. Kindig.

There was considerable agitation for federal legislation to control American foulbrood by regulating shipments of bees and bee products and requiring that all honey moving interstate be certified as coming from apiaries entirely free from American foulbrood. This was finally referred to the Executive Committee of the League for further consideration.

A resolution urging research on bee disease problems is quite opportune.

Mr. C. L. Corkins, entomologist and state inspector of Wyoming, ably discussed the beekeeping problems of his state and the League. Thirty cents per colony was spent last year in Wyoming for foulbrood inspection, and he proposes an active program for the next few years. His state association has recommended establishing a sub-station of the Bee Culture Laboratory, Bureau of Entomology of the United States Department of Agriculture, to be located in the intermountain region. It is not unreasonable to hope that we may have, within the next few years, a better method of controlling American foulbrood, and, no doubt, an effort should be made for accomplishing this through funds appropriated by the Federal Government, if not the states.


The League went on record as favoring federal appropriations to help state work, each state to control its own activity in that line. The bonding plan has been adopted by some reliable bee shippers and was approved.

A proposition was read offering to contribute \$5,000.00 toward a fund of \$25,000.00 for an advertising campaign to increase the consumption of honey, this to be expended by a board consisting of two beekeepers, one of them a member of the Executive Committee of the League, two bee supply manufacturers, and two honey packers. This matter was referred to the Execu-

TAKE A "BEE" LINE TO LARGER SALES



BY ADOPTION
OF

STANDARD  HONEY JARS



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QUEENS HEADQUARTERS FOR QUEENS

Save supersedure or injury to the queen by our method. Queens laying, or ready to lay by the time you receive them, when you buy package bees from us; combless packages or nuclei. Queens marked yellow dot on the back.

SEND FOR FREE CIRCULARS

Information you should read, whether you have already bought with yellow dot on the back.

YEARS OF EXPERIENCE

CARNIOLANS, ITALIANS, GOLDENS

AULT BEE COMPANY  **WESLACO, TEXAS**

Queens — Wholesale Only

But may be ordered out not less than ten at a time as you want them.

20% books your order; balance just before shipping or C. O. D.

SEVEN YEARS' EXPERIENCE WITH ONE OF THE LARGEST QUEEN BREEDERS IN THE UNITED STATES

Lots of	1000	50c each
Lots of	500	55c each
Lots of	250	60c each
Lots of	100	65c each
Lots of	50	70c each

Add 10c each to above for Carniolans

QUEENS bred from the best of HONEY PRODUCERS

that have given good records

Italians

Goldens

Carniolans

Send for Free circular

BLUE BONNETT APIARIES ^{Route}_A Mercedes, Texas

INCREASE YOUR PROFITS

BY BUYING

Bee Supplies at Right Prices

We have special prices for buyers of large quantities and will save you money on your supplies.

We make a specialty of manufacturing hives, bodies, supers, frames, sections and shipping cases.

Our motto is: "SATISFACTION GUARANTEED or Money Refunded."

It will pay you to let us quote you on your requirements before placing your orders.

Write for our 1926 catalog.

A. H. RUSCH & SON COMPANY
REEDSVILLE, WIS.

QUEENS that are QUEENS Get RUNNING'S Queens and Get HONEY

Prices for May delivery as follows:

1 choice untested Italian queen	\$ 1.00
6 choice untested Italian queens	5.40
12 choice untested Italian queens	10.20
1 choice tested Italian queen	1.75
6 choice tested Italian queens	9.00

All queens sent from Sumterville, Ala.

Address

DAVID RUNNING, Fillion, Mich. or Sumterville, Ala.

tive Committee of the League for consideration and action.

The delegates and beekeepers at the convention were nicely entertained at a banquet through the kindness of the local supply men, Messrs. Muth and Messrs. Weber, and the Cincinnati Chamber of Commerce. The 1927 convention of the League is expected to be held at New Orleans, Louisiana, or Hot Springs, Arkansas. H. C. Dadant.

Making Sweet Clover Popular

By L. H. Cobb.

Sweet clover as a honey plant is so valuable that we will be doing our business good every time we make a special effort to increase its popularity in our neighborhood. Not only that but we are benefiting our neighbors as well. It has been considered a weed so long that it is hard to convince farmers that it is anything else, and yet where it has been tested it has proven of great value as a pasture and hay crop. The trouble is that, at first, stock does not like it and the farmers will take first appearances for final, but there is so much evidence now that after it has been eaten a short time the stock comes to prefer it to wild grass and it should not be hard to induce the farmers to give it a trial. I traveled over parts of Iowa, Minnesota, and talked with farmers from South Dakota, and found that sweet clover was being used there very freely. I saw field after field in the western part of both Minnesota and Iowa. In northern Missouri I saw a herd of Holsteins feeding in a large pasture of sweet clover that had heavy roots but slender growths in full bloom, and examination showed that it had been kept grazed down sufficiently to keep it from getting coarse, and yet was furnishing an abundance of fine pasture when pastures all around were badly cut by the drouth then prevalent. One farmer in South Dakota told me that ten acres of sweet clover which he fenced with thirty acres of wild pasture was grazed in preference by his herd of cows, and he considered one acre of sweet clover as worth four acres of wild grass for pasturage. This being the case, we can do our farmers a good turn by inducing them to seed pastures to alfalfa. The pasture is an ideal bee supply source for it remains in bloom so long. All through this sweet clover district I found farmers very enthusiastic for it as a pasture and hay crop, and as it will thrive practically everywhere, there is no reason other places cannot be equally benefited by it, and beekeepers are vitally interested in this.

Perforated Flowers

Referring to your article on "Perforated Flowers," in your December number, page 590, I think that bees make holes in some flowers when the texture is not too hard to punch.

I have, near my apiary, three rows 80 ft. long, of *Monarda didyma* (sometimes called bergamot and also bee balm). Last summer the bees were very busy gathering honey from the base of the corolla tubes. Considering the fact that there was an enormous quantity of flowers, the rows being quite heavy, it is not possible that the perforations were made by wasps or other insects, for I saw very few wasps or bumblebees working on them.

Although I examined the working bees very closely it is very hard to say whether they punched the holes or not, for I could not find any flowers that had no holes, and I suppose that, as soon as a bee discovered a corolla without an opening, it started to make one to gather the nectar.

M. Des Champs, Pennsylvania.

(This is interesting, indeed. But I must say that I have little faith in the ability of the bees to perforate the corolla of flowers, in general, although they may do it, as you say, when they are not too hard. If bees could readily puncture corollas, we would not deplore the fact that the bumblebees are usually the only red clover workers. Yet the corolla of red clover seems very fragile. But the only time when honeybees work upon it is when either the corolla is short or the honey so abundant that they can reach it, for although I have often watched bees working on red clover, it was always through the end of the corolla. Yet some people would have us believe that they can damage the skin of sound fruit, which is much harder than the tender corolla of flowers.—Editor).

New England Beekeepers

We are in receipt, from S. W. Dyer, of two clippings concerning beekeeping in Massachusetts and neighboring states. It appears that they have had some great snows which covered the hives almost entirely and protected them against the cold.

An account of an interview with the President of the Northern Essex County Beekeepers was published in the Lawrence Sunday News and showed that they have been strenuously fighting foulbrood and "have seriously reduced if not totally eliminated the menace." This association usually meets in the rooms of the Natural History Society and in return for the favor entertains them once a year, with honey, ice cream and fancy crackers.

Yes Sir! Our large stock at Omaha enables us to give the best service possible to beekeepers in the "Plains Area."

Iowa, Nebraska, South Dakota

Leahy's Standard Bee Supplies

Are made from the best white pine lumber that can be bought. It is a pleasure to put Leahy's supplies together.

Are Guaranteed to Please

If any of Leahy's supplies are not what you expect from the best, return them and we will refund your money and any other cost. Write to

W. R. PERRY COMPANY 1209 Howard Street Omaha, Neb.

"Our Prices are Low"

1926 Catalog on Request

JENSEN'S

BEEES AND QUEENS do give results. Nothing spared to turn out the very best. Years of experience with honest effort to please. Your satisfaction is the basis of our success.

We are fully responsible, and able to carry out our agreements. Furnish as good hustling stock of Pure Three-Banded Italians as it is possible to produce. Ship you young bees, very few of which have ever been afield. Queens fresh from our own queen yards; of pure breeding and reared by best methods.

Don't delay ordering, if you want to be assured desired dates. Don't judge our products by price only. They will stand the test.

2-lb. packages with untested queens, 1-25 \$3.50 each, upward \$3.00

3-lb. packages with untested queens, 1-25 \$4.50 each, upward \$4.00

2-frame nuclei young tested queens \$4.50

3-frame nuclei young tested queens \$5.50

Lots of 25 up, deduct 50c each

"OUR PRIDE" QUEENS

Untested, 1-10, \$1.10; 11-25, \$1.00; 26-50, 90c; 51-100, 80c; all upward 75c each. One grade of untested only, the best we know how to produce, and every one must be O. K.

Tested, \$1.50 each; breeders, \$5.00.

We guarantee pure mating of queens, safe arrival in good condition everything we ship, and freedom from disease. Health certificate with every shipment; also all other papers necessary to expedite delivery.

JENSEN'S APIARIES, Crawford, Mississippi

GOLDEN ITALIAN QUEENS BRED FOR BUSINESS

Only one grade select. Safe arrival and satisfaction guaranteed.

Untested, 1, \$1.25; 12, \$12.00. Tested, \$2.50 each.

1-lb. pkg. of bees and untested queens, \$3.00; 2 lbs., \$5.00.

All mail charges paid.

E. A. SIMMONS - - - GREENVILLE, ALABAMA

1926

Package Bees

1926

Three-band Italians with select untested queens. Our strain is bred for business, and is giving good results in every honey-producing district of the United States and Canada. Hundreds of packages already booked for spring shipment. Safe arrival and absolute satisfaction guaranteed on every package and queen shipped.

Ten per cent will book your order. Write for full particulars and prices.

CANEY VALLEY APIARIES, Yancey Bros., Owners
BAY CITY, TEXAS

Light Three Banded Bees and Queens The advantages of buying Package Bees on Combs

Ninety-five per cent of the packages that are bought from the South go out with queens. This natural food will keep bees contented in transit and solve the great problem of introduced queens. Queens are introduced and laying enroute. No chances on queens on arrival. You are taking no chances of buying disease from us. Our bees are inspected by Government competent men. We guarantee safe delivery and issue health certificate with each shipment. We want your business and we aim to please you and grow our business.

Will start shipping April 15. Fifteen per cent with order, balance at shipping time. Note our low prices.			
10 2-lb. with selected untested queens	\$ 37.50	50 3-lb.	212.50
25 2-lb.	90.00	100 3-lb.	400.00
50 2-lb.	175.00	10 4-lb. with selected untested queens	52.50
100 2-lb.	325.00	25 4-lb.	127.50
10 3-lb. with selected untested queens	45.00	50 4-lb.	250.00
25 3-lb.	108.75	100 4-lb.	475.00

To those who have a short time for bees to build, we advise the 5-lb. on two frames with selected untested queens at \$6.50 each package.

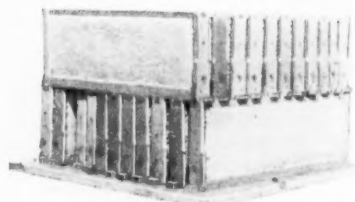
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Manufacturers of "Hercules" Non-Sagging Foundation

We are paying 43c per pound for clean beeswax in trade for bee supplies.
40c in cash. Ship today and notify us

Pearl and Walnut Sts. **THE FRED W. MUTH CO. CINCINNATI, OHIO**



Results like the above, from strong colonies come from giving supers for storage ON TIME. BE READY.

Attention—Iowa Beekeepers

We Are Ready—Are You?

With warehouses stocked and dealers supplied with a full line of Lewis "Beeware" and Dadant's Foundation—the finest line of bee goods

made—We are ready to serve you.

**GUARANTEED SUPPLIES
QUICK SERVICE
LOW TRANSPORTATION**

DADANT & SONS, HAMILTON, ILLINOIS

There is a Lewis-Dadant dealer near you

Use Hutzelman's Solution

The best Disinfectant for American Foulbrood.
Now is the best time to disinfect combs for spring use.
For full information ask your dealer, or write to

DR. J. C. HUTZELMAN, Glendale, Ohio

(Patented October 14, 1924.)



QUEENS



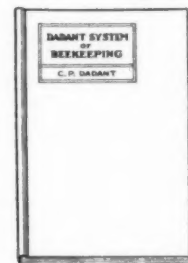
Miller's Old Reliable Three-Banded Italians have a reputation. Give them a trial. We are prepared to take care of your orders for the season. Safe arrival guaranteed. Circular free.

	1	6	12
Untested	\$1.25	\$6.50	\$12.00
Select Untested	1.50	8.00	15.00
Tested	2.50	14.00	27.00
Select Tested	\$3.00 each		

JOHN G. MILLER, 713 C STREET Corpus Christi, Texas

The Dadant System of Beekeeping

By C. P. Dadant



The Dadant way of keeping bees explained, including the important points in the use of the large hive.

The author gives an account of his long practice and describes the many

experiments made by Charles Dadant and his descendants in the Dadant Apiaries.

In English, "The Dadant System of Beekeeping." In French, "Le Systeme Dadant en Apiculture." In Italian, "Il Sistema D'Apicoltura Dadant."

118 pages, 37 illustrations; cloth binding

PRICE \$1.00, POSTPAID

In French, paper cover, 50c

AMERICAN BEE JOURNAL, Hamilton, Ill.

Crop and Market Report

Compiled by M. G. Dadant.

We asked reporters to answer the following questions:

1. How much of the crop remains unsold?
2. Will it move before new crop is available?
3. Condition of bees and winter loss.
4. How are honey plant prospects?

CROP REMAINING UNSOLD

The honey crop in the northeast and New England states seems to be pretty well cleared up, there being a small percentage left on hand which practically every reporter stated would be disposed of before the new crop came to hand.

The same is true in Pennsylvania, New Jersey and the southeastern states as far west as Texas.

It is not until we get as far west as Ohio that we begin to see the possibility of a little carry-over in the honey market. In Ohio and Indiana there will probably be slight carry-over, but the amount carried over increases as we go westward, reporters generally in Michigan, Wisconsin, Minnesota, Illinois and Iowa, stating that they are doubtful if all of the honey is out of the hands of producers by the time the new crop arrives. It is undoubtedly true, in these districts at least, that there will be a considerable quantity of honey in the hands of the jobbers when the new crop arrives, as the sale continues to be slow, almost as slow as it was immediately following the holiday period.

In the plains states, the conditions are somewhat the same, although possibly a little better volume of sales has been secured.

In the intermountain territory, there are conflicting reports, some to the effect that most honey is disposed of and others that there is considerable on hand. We know of several cars still in Montana and a few, although very few, in Colorado.

One reporter from Utah states that there are still nine carloads in that state not disposed of and reports from Washington would indicate that there are possibly four or five cars being held at a price which cannot possibly be realized.

Very little honey is left in New Mexico and Arizona, and what is left in California consists of honey which has been shipped in from the intermountain territory or Washington and Oregon.

All in all, it is undoubtedly certain that if all the old crop of honey is moved, it will have to move at a price much less than could have been realized in the fall, as prices have dropped probably one cent or more on carload shipments since that time.

CONDITION OF BEES

The condition of bees seems favorable throughout the entire North, bees having generally gone into winter quarters in fair shape with a fair amount of stores. There is some uneasiness on the part of cellar winterers as to the prolonged winter and a hope on their part that the cold spell may be broken and the spring arrive so that bees can be set out on their summer stands.

The uneasiness is not only on the part of beekeepers, but on the part of bees in many cellars which are beginning to appear restless.

Even so, very probably these bees are in better condition than some wintered outdoors in the same location, because of the continued, prolonged cold spell. These bees out-of-doors do not appear to have suffered seriously, but if the cold weather continues very long, it is a question whether they will come out in as good shape as the cellar-wintered bees, even though they were carefully packed.

In the southeastern states, bees are in excellent condition and have been building up rapidly. In Texas, the bees suffered from shortage of stores last fall, but this is now being gradually overcome and conditions are approaching more nearly the normal.

In the intermountain territory and northwest, the bees appear to be in at least as good condition as a year ago, and possibly better. California reports bees only in fair condition, there having been a retarding of brood rearing through late frosts which checked the early honey-flows. In some sections willow was damaged and this surplus cut off.

HONEY PLANT PROSPECTS

If we are to gauge anything of honey prospects by the amount of snow there has been, we would at once advise that the northeast and east central states are in for a big crop of honey, because they have had very heavy snows which have continuously covered the ground during the winter and which, of course, is one of the very best conditions for clover in the spring. This condition exists as far west as Minnesota. We do, however, hear reports from Minnesota and the Dakotas to the effect that there has been a dearth of snow and the ground has been bare for a considerable period.

This also extends somewhat southward from there.

The southeast seems to be in the midst of early flows now, with conditions about normal, although bees possibly a little below normal.

In Texas, crop conditions are excellent, there having been sufficient rainfall and the buds are coming out wonderfully. Conditions are optimistic. West Texas is probably still suffering from drouth unless rain has recently fallen.

The intermountain territory, which suffered so much from shortage of snows last year, is having more nearly normal snows this year and it would appear that conditions are going to be normal as far as we can judge now of the honey plant prospects.

This also applies to the northwest.

In California, the northern section has been well supplied with rain and this is also true of some southern sections, although there is still a deficiency in rainfall, and most reporters are hoping for additional rain to keep the honey plants coming in order to assure something like the old normal honey crops.

Undoubtedly, bees are not in as good condition as they might be there, so that additional prospects will be welcomed.

All in all, our idea would be that conditions as a whole are at least normal throughout the country for bees and honey prospects, with somewhat subnormal conditions in the honey market itself.

SPECIAL—20 or more one-pound packages high grade Italian bees with select untested queens. Express prepaid to your station at a very low price. Write John C. Hogg, Ramer, Ala.

BOOKED TO CAPACITY until May 20. Two-pound packages with queens shipped between May 20 and June 10, \$3.00 each, any number.

The Crowville Apiaries, J. J. Scott, Prop., Crowville, La.

BEES AND QUEENS—2-lb. package bees with young Italian queen, \$2.75; 3-lb. package, \$3.65. In quantities, see my large ad on page 162. H. E. Graham, P. O. Box 666, Cameron, Texas.

GOLDEN Italian Queens and Nuclei for 1926—The big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, \$1.00 each; 6 for \$5.00; 12 for \$10.00; \$75.00 per hundred. Tested, \$2.00 each. Two-frame nuclei with queen, \$4.50 each; 10 or more, \$4.00 each. Safe arrival guaranteed. E. F. Day, Honoraville, Ala.

PACKAGES WITH QUEENS INTRODUCED will save time and loss in both bees and queens. Our queens are of the best Italian stock and are introduced and ready for business upon arrival. Also queens alone. We never have had any disease in our yards. State inspected. Satisfaction guaranteed. A. O. Smith, Mt. Vernon, Ind.

MOTTS' Northern Bred Italian Queens for 21 years. Selected queens only. Return any not pleasing. You the judge. April and May, \$1.25; June, \$1.00. Tested, \$2.00. See free list. E. E. Mott & Son, Glenwood, Mich.

GOLDEN Italian Queens, untested, about May 1, \$1.00; 6 for \$5.40; 12 or more, 80 cents each. Last fall's rearing, tested, \$1.50; select tested, \$2.50. No disease, safe arrival and satisfaction guaranteed. D. T. Gaster, R. No. 2, Randleman, N. C.

MY seasonably reared queens will please you. Circular sent when wanted. R. V. Stearns, Brady, Texas.

PACKAGE BEES—Three-banded Italians. Two-pound package bees with untested queen, \$3.75; five or more, \$3.50. Queens, \$1.00 each, \$10.00 per dozen. No disease. C. G. Ellison, Belton, S. C.

PLACE YOUR ORDER with me for Golden Italian Queens that are bred for business as well as good color and gentleness. State inspected for health, delivered safe. Untested, \$1.05 each; 6 for \$5.50; 12 or more 80c each. Hazel V. Bonkemeyer, R. No. 2, Randleman, N. C.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 22 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: Untested queen, \$1.25; 12 untested queens, \$12.00; 1 breeder, \$10.00. Emil W. Gutekunst, Colden, N. Y.

YOU want as few old, worn-out bees in your packages as you can get. Neither do you want a bunch of drones even if the weight is there without them. Also a virgin in an occasional package to kill the good queen placed there is annoying. A card will bring my circular telling how to eliminate all these annoyances, and my prices are in line. R. V. Stearns, Brady, Texas.

LATHAM'S "She-Suits-Me" untested 3-banded, \$2.00 per queen from May 15 to June 5. After June 5, \$1.00 each. Packages and nuclei. Introduction insured. Send for circular. Allen Latham, Norwichtown, Conn.

SPECIAL OFFER MAY 30—Small colonies of bees with this year's queens laying enroute. These colonies will consist of two selected frames of brood, two frames of honey and a pound and one-half of bees in a five-frame hive suitable for queen rearing or transportation of bees. Prices in lots of 5 to 25, \$7.00 each. Special discount on larger quantities. Sarasota Bee Co., Englewood, Fla.

ATTENTION, NORTHERN HONEY PRODUCER—St. Romain Quality Bees ready for 1926 season. I am in position to furnish several carloads of nuclei and pound packages at a very reasonable price. Shipping season starts April 1, 1926, and all bees are absolutely free from disease. I furnish health certificate with each shipment, also guarantee safe arrival. All bees shipped on comb of emerging brood and honey for feed in transit, also combless packages, if customer desires. Prices as follows: 1 2-lb. package with queen, \$3.00; 1 3-lb. package with queen, \$4.00; 1 4-lb. package with queen, \$5.00. Large orders will be given special attention. Address John St. Romain, Marksville, La.

BEES, BEES, BEES—I have the bees and equipment, backed by 15 years of bee-keeping experience and selective breeding to supply your wants with three-banded Italians. Begin shipping April 10. Two-pound packages with queen, \$4.00 each; 6, \$3.75 each; 12 or more, \$3.50 each. Select untested queen, \$1.00 each; 12, \$10.00. Satisfaction guaranteed. P. M. Williams, Ft. Deposit, Ala.

PACKAGE BEES—Circular free. VAN'S HONEY FARMS, HEBRON, IND.

GRAY CAUCASIANS, GRAY CARNIOLANS—Purity of race guaranteed. Fifteen years of real breeding and expert selection are behind them. Strong, long-lived, and as producers of commercial honey they have no superiors and few equals. Try them. Untested, \$1.50; tested, \$2.50; select tested, \$3.00 each. Ten per cent off on lots of one dozen. Rates on 100 or more. No disease. Chas. W. Quinn, La Belle, Fla.

COMBLESS PACKAGE BEES—Earliest package bees, March 1 to May 1. Finest three-banded Italians, young bees. Two pounds \$2.00; three pounds, \$3.00. Queens, \$1.00. One thousand colonies to draw from; never any disease here. Ten per cent books order, balance at shipping time. Five per cent discount if full payment accompanies order. We will please you. Robert N. Moore R. 2, Box 128, Tempe, Arizona.

ITALIANS—Strong, hardy, vigorous. None better, few equal. Untested, \$1.00; tested, \$1.25. No disease. Chas. W. Quinn, La Belle, Fla.

QUEEN BEES—\$1.00 each or \$10.00 per dozen. A few pound bees later in the season, \$2.00 per pound. Graydon Bros., R. 4, Greenville, Ala.

TRY PETERMAN'S QUEENS—Bred from select breeders, raised in standard frame, strong, nuclei well laid up before caging and last and most important, I select only the largest, thrifty layers to sell, killing all others. From experience I know this pays. Am building a business on a square deal basis. Prices: 1, \$1.25; 6, \$7.00; 12, \$13.00; 25, at \$1.00 each; 100, 90c each. H. Peterman, Lathrop, Calif.

EARLY NUCLEI, Italian bees with queens. Two frames, well covered with brood and honey and 1 lb. bees with untested queen, \$4.25; ten or more at \$4.00. For every extra frame or pound of bees, add \$1.00. Health certificate with each shipment. Delivery will start April 15, 20 per cent down, balance at shipping time. L. S. Firment, Moreauville, La.; shipping point, Bordelonville, La. Member Louisiana State Beekeepers' Association.

FOR SALE—Italian bees and queens, 2-lb. packages of bees with queens, \$3.50 each; 1-lb. package with queens, \$2.50. Queens bred with the greatest of care. O. P. Hendrix, West Point, Miss.

SALIDA APIARIES for early Italian queens and package bees. Write for prices and order early. Salida Apiaries, Salida, Stanislaus Co., Calif.

BRIGHT three-band Italian queens with special introducing cage. See display ad for prices. J. F. Diemer, Route No. 3, Liberty, Mo.

FOR SALE—Italian bees and queens; 2-lb. bees with young queen, \$4.00; 3-lb. bees with young queen, \$5.00. Bees inspected, and certificate with each shipment. If interested in queenless packages or large orders, write for special prices and full particulars. Satisfaction and safe delivery guaranteed. J. L. Leath, Corinth, Miss.

JAY SMITH strain Italian queens. Book early for spring delivery. Satisfaction guaranteed; \$1.00 each. J. C. Hester, Mansfield, La.

BOOKING ORDERS FOR 1926—Two frames well covered, two additional pounds, queen introduced and laying enroute to you, all for \$5.00. Best package and best price in the South. Young Italian queen and bees and Hoffman frames, with health certificate attached. One-fifth down books order for May delivery. Send for December copy of Beekeepers' Item giving co-operative plan of certified advertising of members of Louisiana State Beekeepers' Association. Jes Dalton, Bordelonville, La.

TEN YEARS of experience in breeding queens of quality Goldens, also gray Caucasians. Golden queens: one, \$1.25; dozen, \$11.50. Gray Caucasians, one, \$1.50; dozen, \$15.00. Pure mating. Safe arrival guaranteed in United States and Canada. Tillery Bros., Rt. 5, Greenville, Ala.

THREE-BANDED Italian queens. Package bees. Untested queens, 1, \$1.00; 6, \$5.00; 12, \$9.50. 100, \$75.00. Tested queens, \$1.50 each. Write for price list on package bees. Safe arrival, satisfaction guaranteed. Taylor Apiaries, Lock Box, Luverne, Ala.

GOLDEN THREE-BANDED and Carniolan queens. Tested, \$1.00; untested, 75c each. Bees in 1-pound package, \$1.50; 2 pounds, \$2.50; 3 pounds, \$3.25. Safe delivery guaranteed. C. B. Bankston, Box 65, Buffalo, Leon Co., Texas.

BRIGHT ITALIAN QUEENS—One, \$1.00; 6 for \$5.00 or 12 for \$10.00. Write for prices on large orders or package bees. P. B. Skinner, Greenville, Ala.

LEATHER COLORED ITALIAN QUEENS—\$2.00; after June 1st, \$1.00. Tested, \$2.00. A. W. Yates, 15 Chapman St., Hartford, Conn.

SALIDA APIARIES are now booking orders for early spring delivery of our high-class Italian queens and bees. We use the best breeders obtainable and ship only the best thrifty queens. Prompt service, safe arrival in U. S. and Canada, and we guarantee to treat you square. Untested queens: 1, \$1.25; 6, \$7.00; 12, \$13.00; 25, \$1.00 each, and 100 at 90c each. Salida Apiaries, T. L. Nicolaysen, Prop., Salida, Stanislaus Co., Calif.

FREE—Our 20-page illustrated circular on bees and queens. The Stover Apiaries, Tibbee Station, Miss.

FOR SALE—Italian queens ready May 15. One queen, \$1.00; 6 queens, \$5.50; 12 queens, \$10.00. W. W. Talley, R. 4, Greenville, Ala.

I AM booking orders for May delivery on Caucasian and Italian 3-frame nuclei; also queens of either race. Yard inspected; no disease. Peter Schaffhauser, Havelock, N. Car.

FOR SALE

FOR SALE—Honey extractors, capping melters and wax extractors, cheap. Geo. Stinebring, Shreve, Ohio.

EXCELLENT apiary locations near to market. Mrs. E. J. Gray, Livingston, Montana.

FOR SALE—Twenty-five colonies in standard ten-frame hives, each with four extracting supers containing wired and drawn comb. Extractor, tank, etc. A bargain. K. W. Green, Langdon, N. Dak.

FOR SALE—Lumber, cottonwood boards, planed and dressed, and some basswood lumber in cut lengths for bee boxes. Live raccoons, foxes, minks, for fur farming. Northern Raccoon Farm, Fairfax Minn.

FOR SALE—Golden Italian queens. One untested queen, \$1.00, ready for mailing about May 20; one tested queen, \$2.00, ready June 20. Satisfaction guaranteed. When orders cannot be filled in six days, money returned, unless otherwise ordered. J. F. Michael, R. No. 1, Winchester, Ind.

FOR SALE—Standard extracting outfit, including supers of combs, queen excluders, extractor and tanks. All goods in fine condition; no disease. Write for prices and information. Ten-frame hive, used. Fred H. Drury, Unionville, Mo.

FOR SALE—100 ten-pound pail cases, new, in flat, at 35c each; 25 two-pound square package bee shipping cages, used once, good shape, at 25c each. Will trade above for a Lobbe ¾-inch honey pump, complete, and a two- or three-burner new Perfection oil stove or 500 ½ depth extracting frames in flat and 500 No. 1 4¼x4¼x1¾ beeway sections. Harry R. Fisher, 303 S. Eighth St. Montrose, Colo.

FOR SALE—Nearly new 4-frame hand Root reversible extractor, 9-in. pockets, \$45.00. T. E. Babcock, Norwich, Conn.

FOR SALE CHEAP—Small place with fruit, poultry and bees. Verne Chambers, Van Meter, Iowa.

ONE OF THE BEST locations in America for sale. On state trunk highway. Room for two thousand colonies. Address P. O. Lock Box 145, Oconomowoc, Wis.

FOR SALE—44 Modified Dadant bodies with combs. New goods; no disease. C. S. Engle, 1327 23d St., Sioux City, Iowa.

WE have just secured from France a quantity of "sanfoin" seed which we offer to subscribers interested in trying this valuable honey plant. Prices are: Per pound, 30c; 5 pounds, \$1.25. Parcel post extra. American Bee Journal, Hamilton, Ill.

WILL TRADE one lemon and white spotted bird dog for extractor or bee supplies. Best offer gets him. Isaac J. Coley, Atmore, Ala.

ACHORD BEES AND QUEENS

The Best of Pure Three-Banded Italians

Shipments start April 20th.

2-lb. package with select young
laying queen ----- \$ 4.75
Five 2-lb. packages ----- 22.50
Twenty-five 2-lb. packages ----- 112.50
3-lb. package with select young
laying queen ----- 5.75
Five 3-lb. packages ----- 27.50
Twenty-five 3-lb. packages ----- 137.50

If packages are wanted without queens, deduct \$1.00 from the price of each package. Inspection certificate and all necessary papers to carry packages through without delay. Safe arrival guaranteed. Express charges collect at destination, or if shipped by parcel post, postage will be added to invoice.

QUEENS

Select young laying queens \$1.00 each, any number. Tested queens \$1.75 each, any number.

No bees or queens sent C. O. D. Producing package bees and queens has been our sole business for many years. We have passed that costly and dangerous experimental stage. Your order placed here brings highest value for the money invested. Write for complete information.

W. D. ACHORD, Fitzpatrick, Ala.



Every ounce of this
re-processed Water

**FORMALIN
SOLUTION**

measures up to a
given standard of
strength and purity

For sterilizing combs infected with
AMERICAN FOULBROOD it is the
Cheapest Dependable Disinfectant.

THE D. & B. CHEMICAL CO.

800 E. 37th St.

Portland, Oregon

KANSAS BEEKEEPERS

Lewis Beeware, Dadant's Wired
Foundation at catalog prices.

KENNEDY & SONS

1809 Tenn. St.,

LAWRENCE, KANSAS

OUTARIARIES

By M. G. Dadant.

Covers equipment, management
and locations.

110 pages, 60 illustrations.

Price \$1.00, postpaid.

American Bee Journal

Hamilton, Illinois

QUEENS WE CAN FILL YOUR ORDERS PACKAGE BEES
NOT YET BOOKED FULL

We are enlarging and improving our apiaries and have purchased the entire equipment and apiary of M. G. Ward and also the apiary of A. W. Lee, and can take care of your orders.

We have carefully selected as our breeding stock the best and most prolific queens. We produce our queens under normal conditions in well-filled standard nuclei. They will make you money. Either Italians or Carniolans with any amount of package bees at the following prices:

Select untested queens, \$1.25 each; 10 or more, \$1.00 each

Package bees, \$2.50 per two-pound package

Write for booklet based
on 16 years experience
with bees

FRANK & ST. JOHN
RIPON, CALIF.

Special prices on
large orders

READ THIS

And bear in mind that not one of our customers has written that he was dissatisfied with our Queens.

"The 50 Queens bought of you last year did fine and were as good a bunch of Queens as we have ever bought at any price."—Montana.

"I am writing to thank you for the 25 Queens I got from you last spring, and want to say they were the best Queens I ever received from the South. If you will give me the same good service this spring I want you to quote me prices on," etc.—Iowa.

Names on request

You may expect the same Standard of Quality and Service
Three-Banded Italian Queens—Prices as follows:

1 to 11	-----	\$1.00 each
12 to 24	-----	.90 each
25 to 49	-----	.80 each
50 to 99	-----	.75 each
100 or more	-----	.70 each

Safe Arrival and Satisfaction Guaranteed

JNO. C. HOGG, Ramer, Alabama

"Chrysler's Process Foundation"

takes no second place in comparative tests. It is not stretched in the milling, consequently has more cells to the comb than other processes, made of pure beeswax, and refined without acids. We have ample stock and capacity to supply large or small orders. Satisfaction guaranteed; 35 years' experience. Reference, Bank of Montreal. Manufacturers of other supplies. Send for catalogue.

W. A. CHYSLER & SON, Chatham, Ont.

—NEBRASKA BEEKEEPERS—

You can get Root goods quickly, from these points:

GRISWOLD SEED COMPANY -- LINCOLN | J. R. BUDLER ----- HAMPTON
CARHART LBR. COMPANY -- WAYNE | ROSENBERG COMPANY -- LEXINGTON
TURNER & SONS ----- RED CLOUD | R. W. WALLACE ----- OVERTON
THE CONSERVATORY -- OSHKOSH

THE A. I. ROOT CO. OF IOWA, Council Bluffs, Ia.

Burr Combs

Two Faithful Workers

By C. P. Dadant.



LEON

The two fellows on this page are the oldest helpers of the Dadant family, two brothers, Joe and Leon Saugier. Their father, Grandpa Saugier, was the first carpenter to help build hives for the Dadant apiaries, in the time preceding factory work. He is 91, but still alert. The other day, a quarter of a mile from his home, he was offered a ride home in a Ford. He refused to go inside, but just held himself on the fender for that short distance. At 91, Grandma Saugier says, he is reckless. She is right.

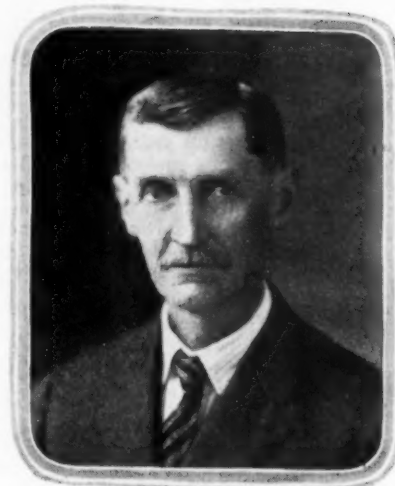
Joe is a long, lank, lean individual who for the past fifty years, has been accused of **consumption**, otherwise called **tuberculosis**. It is true that he **consumes** a good many **tubers**, otherwise called **potatoes**, and much other food, but it never fattened him. Both the brothers are still able-bodied and can do considerable work. Leon is son-in-law of C. P. D.

As early as their boyhood days, Leon and Joe helped in the apiaries, to take off supers, get badly stung, uncap and extract honey, fill barrels, haul hundreds of these barrels of honey from the outapiaries, fill pails, jars and cans and label them, pack the bees for winter, haul bees and beehives from one place to another, over the rough roads and corduroy crossings of the Mississippi

bottom lands, and do all the other jobs of large apiaries. Whenever a third team was needed for hauling bees, the Saugier team of horses was enlisted, two little bays, as gentle and as spoiled as kittens and not very much larger. They were perfectly safe, and when they were hitched to a rack load of bees, if some of the other teams became frisky, owing to an angry bee or two about their ears, the Saugier team could be left in the middle of the road while one went to the rescue, and there would be no danger of their running away. But they had the bad habit of taking off their bridles, by rubbing against each other, as soon as they were left alone, and quietly climbing up or down the declivity on the roadside to grab a wasting bunch of grass. This might have ended disastrously, by upsetting the load of hives on a steep hillside, but never did an accident of that kind happen. They were the most desirable horses to have when one had to lift the hives over the gate post, as related on page 26 of the editor's recollections, in the January number. Neither could we thrash them, for they had so much confidence in human kindness that they would laugh at you. Did you never see a horse laugh?

After a number of years of bee work, when Charles and C. P. Dadant were no longer able to fill their orders for foundation by making it at odd times, when resting, or during a rainy day, Joe and Leon were enlisted in the work.

Joe became manager of the moulding, while Leon managed the sheeting. At first, sheets were made by dipping panes of thick glass into the hot wax, but as small chips would often break off and remain in the wax to spoil the rolls, it became necessary to change to thin boards. Later the Weed process came on, which was not all smooth work, as the sheeter would often squirt hot liquid wax on one end while laboriously forcing stiff, cold wax out of the other end of the jaw, making sheets shaped very much like an umbrella. Running the different makes of foundation mills, Joe remembers the time when ten pounds a day, of extra-thin, required a lot of hard work, for it was often necessary, especially with the Dunham mills, to boil out the sheet of wax, so well stuck it was in the cell-shaped jaws of the rolls. None of us had the idea, then, that the time would come when, instead of ten to fifty pounds,



JOE

a lot of well trained machines and men could run out 5,000 pounds a day when necessary. The first year's work at foundation making had produced 500 pounds, but the present—well, you might accuse us of bragging if we told you how much.

Grandpa Saugier was the first man to do a record day's work in uncapping honey. He did it with the Bingham knife just after it was invented. Leon beat that record several times over, later; but neither he nor I would attempt to show a record day at present. A number of prize takers would probably show a better record now.

In comb foundation moulding I do not believe anyone in existence has ever surpassed the work of Joe, or that of Leon in sheeting. Joe has figured out that the number of sheets of foundation that he has run would make a belt around three-fourths of the circumference of the world.

When the making of comb foundation did not require the entire season, the boys helped in extracting, packing honey, putting bees in winter quarters, and any odd jobs. Now they are, like myself, resting on the shelf, taking a well-earned change from steady work, attending at the shop or at the bees only when specially required and called upon. Joe is just as thin as ever, but still healthy, although kindly spirited ladies often waste their sympathy on the "poor fellow, evidently dying of tuberculosis." It is a slow death, for he is likely to live as long as his father, in spite of his raw-boned appearance. Both of the boys are members of the Dadant partnership.